IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF DELAWARE

CALLAWAY GOLF COMPANY, Plaintiff, v. ACUSHNET COMPANY, Defendant.	C. A. No. 06-91 (SLR)

DECLARATION OF THOMAS L. HALKOWSKI IN SUPPORT OF PLAINTIFF CALLAWAY GOLF COMPANY'S *DAUBERT* MOTION TO EXCLUDE EXPERT TESTIMONY RE HYBRID GOLF BALLS

I, Thomas L. Halkowski, declare as follows:

1. I am a principal of Fish & Richardson P.C., counsel of record in this action for plaintiff Callaway Golf Company. I am a member of the Bar of the State of Delaware and am admitted to this Court. I have personal knowledge of the matters stated in this declaration and would testify to them under oath if called upon to do so.

2. Attached as Exhibit 1 is a true and correct of the Expert Report of William J. MacKnight dated May 29, 2007.

3. Attached as Exhibit 2 are true and correct excerpts from the deposition of William J. MacKnight taken in this matter on August 2, 2007.

4. Attached as Exhibit 3 is a true and correct copy of the Expert Report of Dr. Robert J. Statz dated June 1, 2007.

5. Attached as Exhibit 4 is a true and correct copy of the Declaration of Jeffrey L. Dalton in Support of Acushnet's Motion for Summary Judgment of Invalidity dated August 24, 2007.

Executed this 10th day of September, 2007, at Wilmington, Delaware.

/s/ Thomas L. Halkowski
Thomas L. Halkowski

CERTIFICATE OF SERVICE

I hereby certify that on September 10, 2007, the attached document was electronically filed with the Clerk of Court using CM/ECF which will send electronic notification to the registered attorney(s) of record that the document has been filed and is available for viewing and downloading.

I hereby certify that on September 10, 2007, I have Electronically Mailed the document to the following person(s):

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ACUSHNET COMPANY

/s/ Thomas L. Halkowski
Thomas L. Halkowski

50436621

Exhibit 1

IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF DELAWARE

CALLAWAY GOLF COMPANY,	)	
	)	
Plaintiff,	)	C.A. No. 06-91 (SLR)
v.	)	
	)	
ACUSHNET COMPANY,	)	
	)	
Defendant.	)	

EXPERT REPORT OF DR. WILLIAM J. MACKNIGHT

1. My name is William J. MacKnight. I submit this report to describe testing I have performed related to invalidity arguments that have been made by Acushnet with respect to U.S. Patent Nos. 6,210,293 ("the '293 patent"), 6,503,156 ("the '156 patent"), 6,506,130 ("the '130 patent"), and 6,595,873 ("the '873 patent") (collectively the "Sullivan patents"). I have personal knowledge of the matters discussed herein, and I would testify to them under oath if called upon to do so.

2. I hold the position of Wilmer D. Barrett Distinguished Professor (Emeritus) in the Polymer Science and Engineering Department at the University of Massachusetts. I have been a professor at the University of Massachusetts since 1965, and was named Wilmer D. Barrett Distinguished Professor in 1998.

3. My educational background is summarized as follows:

1958: B.S. in Chemistry (with Distinction), University of Rochester

1963: M.A. in Chemistry, Princeton University

1964: Ph.D. in Physical Chemistry, Princeton University

1964: NSF Cooperative Fellow, Princeton University

4. I consider myself an expert in the field of polymer science, based on my years of teaching and research in that area. My resume is attached to this report as Exhibit A.

5. I understand Acushnet has presented arguments regarding the patentability of the Sullivan Patents in relation to several prior art references, including U.S. Patent No. 4,431,193 to Nesbitt ("Nesbitt 193), U.S. Patent No. 5,314,187 to Proudfit ("Proudfit 187"), U.S. Patent No. 4,274,637 to Molitor ("Molitor 637"), U.S. Patent No. 5,334,673 to Wu ("Wu 673"), and U.S. Patent No. 4,674,751 to Molitor ("Molitor 751").

6. I was asked by Acushnet and its lawyers to direct the preparation and testing of certain golf balls that are described by the patents listed above, or combinations thereof. I personally directed the preparation and testing of such golf balls.

7. The methods by which I prepared and tested the golf balls, and the results of those tests, are set forth in detail in the declaration I submitted to the Patent Office, which is attached to this report as Exhibit B. If asked to do so, I will testify at trial regarding the testing I performed.

Respectfully,

William J. MacKnight

Dr. William J. MacKnight

Dated: June 1, 2007

EXHIBIT A

WILLIAM J. MACKNIGHT

Wilmer D. Barrett Distinguished Professor Emeritus
Polymer Science and Engineering Department

Education

1954-58	B.S. in Chemistry (with Distinction), University of Rochester	
1961-64	Princeton University,	M.A. in Chemistry, 1963
		Ph.D. in Physical Chemistry, 1964
		NSF Cooperative Fellow, 1964

Post Doctoral

1964-65 Research Associate in Chemistry, Princeton University (with A.V. Tobolsky)

Military Service

1958-61 U.S. Navy. Initial rank, Ensign; final rank, Lieutenant

Employment

1965- University of Massachusetts

1965-69	Assistant Professor of Chemistry
1969-74	Associate Professor of Chemistry
1974-76	Professor of Chemistry
1976-85	Professor and Head, Polymer Science and Engineering
1985-88	Professor, Polymer Science and Engineering
1988-95	Professor and Head, Polymer Science and Engineering
1995-96	Professor, Polymer Science and Engineering
1996-98	Distinguished University Professor, Polymer Science and Engineering
1998-1999	Wilmer D. Barrett Distinguished Professor
1999-	Wilmer D. Barrett Distinguished Professor Emeritus

Some Recent Activities

Visiting Professor, Department of Chemical Engineering and Chemical Technology, Imperial College, London, England, 1979 and 1996
Member, Editorial Board, Macromolecules, 1981-84
Member, Evaluation Panel for the Center for Material Science, National Bureau of Standards, 1982-88
Member, National Academy of Sciences, National Research Council Board of the Conference on Insulation and Dielectric Phenomena, 1981-84
Chairman of the Gordon Conference on Polymers (West), 1982
Chairman of the Gordon Conference on Dielectric Phenomena, 1982
Chairman of the Gordon Conference on Ion-Containing Polymers, 1985
Member Research Briefing Panel on Polymeric Structural Materials of the National Research Council, 1984
Member, Science and Technology Advisory Council, Alcoa, 1984-86
Member, Board of Trustees, Plastics Institute of America, 1984-87
Member, Governing Board, Council of Chemical Research, 1982-85

Member, Technical Advisory Board, Diversitech General, 1984-87
Member, Council of the Gordon Research Conferences, 1984-1988
Member, Editorial Board, Polymers for Advanced Technologies, 1988-
Member, Editorial Board, Acta Polymerica, 1992-
Member, Editorial Board, Gels and Networks, 1992-1998

Membership

American Chemical Society
American Physical Society (Fellow)
American Association for the Advancement of Science (Fellow)
National Academy of Engineering

Honors and Awards

Ford Prize in High Polymer Physics administered by the Division of High Polymer Physics of the American Physical Society, 1984 (joint with F.E. Karasz)
UMass. Faculty Fellowship Award for excellence in research 1984-85
John Simon Guggenheim Memorial Foundation Fellow, 1985-86
American Chemical Society Award in Polymer Chemistry (Mobil Award), 1997
Distinguished Service Award in Advancement of Polymer Science administered by The Society of Polymer Science, Japan, 1998
Herman F. Mark Award administered by the Division of Polymer Chemistry of the American Chemical Society, 2002
Fellow, Polymer Materials Science & Engineering Division, American Chemical Society, 2004

Publications

About 340 publications and 8 patents in the field of structure-property relationships in microphase separated polymers including ionomers, polyblends and polyurethanes

Co-Author of two books:
Polymeric Sulfur and Related Polymers, 1965 (with A.V. Tobolsky)
Introduction to Polymer Viscoelasticity, 1st Edition, 1975 (J.J. Aklonis and M.C. Shen), 2nd Edition, 1983 (with J.J. Aklonis), 3rd Edition, 2005 (with M.T. Shaw)

EXHIBIT B

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Sullivan Reexamination Proceeding Control No.: 95/000,120 Filed: January 17, 2006 For: U.S. Patent No. 6,210,293	)))))	Examiner: Michael W. O'Neill Art Unit: 3993
In re Sullivan Reexamination Proceeding Control No.: 95/000,121 Filed: January 17, 2006 For: U.S. Patent No. 6,503,156	)))))	Examiner: Michael W. O'Neill Art Unit: 3993
In re Sullivan Reexamination Proceeding Control No.: 95/000,122 Filed: January 17, 2006 For: U.S. Patent No. 6,506,130	)))))	Examiner: Michael W. O'Neill Art Unit: 3993
In re Sullivan Reexamination Proceeding Control No.: 95/000,123 Filed: January 17, 2006 For: U.S. Patent No. 6,595,873	)))))	Examiner: Michael W. O'Neill Art Unit: 3993

Central Reexamination Unit
571-273-9900

DECLARATION OF WILLIAM J MACKNIGHT UNDER 37 C.F.R. §1.132

I, William J. MacKnight, state as follows:

1. I have been asked by third party requestor Acushnet to provide a declaration in connection with its Third Party Comments after Patent Owner Response to the USPTO Office actions regarding U.S. Patent Nos. 6,210,293 ("the '293 patent"), 6,503,156 ("the '156 patent"), 6,506,130 ("the '130 patent"), and 6,595,873 ("the '873 patent") (collectively the "Sullivan patents"). I have personal knowledge of the matters discussed herein, and I would testify to them under oath if called upon to do so.

2. I hold the position of Wilmer D. Barrett Distinguished Professor (Emeritus) in the Polymer Science and Engineering Department at the University of Massachusetts. I have been a professor at the University of Massachusetts since 1965, and was named Wilmer D. Barrett Distinguished Professor in 1998.

3. My educational background is summarized as follows:

1958: B.S. in Chemistry (with Distinction), University of Rochester

1963: M.A. in Chemistry, Princeton University

1964: Ph.D. in Physical Chemistry, Princeton University

1964: NSF Cooperative Fellow, Princeton University

4. I consider myself an expert in the field of polymer science, based on my years of teaching and research in that area.

5. I understand Acushnet has presented arguments to the USPTO regarding the patentability of the Sullivan Patents in relation to several prior art references, including U.S. Patent No. 4,431,193 to Nesbitt ("Nesbitt 193), U.S. Patent No. 5,314,187 to Proudfit ("Proudfit 187"), U.S. Patent No. 4,274,637 to Molitor ("Molitor 637"), U.S. Patent No. 5,334,673 to Wu ("Wu 673"), and U.S. Patent No. 4,674,751 to Molitor ("Molitor 751").

6. I was asked by Acushnet and its lawyers to direct the preparation and testing of certain golf balls that are described by the patents listed above, or combinations thereof. I have personally directed the preparation and testing of the materials and golf balls described herein.

PREPARATION OF GOLF BALLS

7. At my direction, technical personnel at Acushnet's Research and Development department created several golf balls to be tested for Shore D hardness of the outer cover layer, as measured on the surface of the ball. In particular, I directed the preparation of twelve (12) samples each of nine (9) constructions of golf balls with various combinations of core formulation and diameter, inner cover layer formulation and thickness, and outer cover layer formulation and thickness.

PREPARATION OF MATERIALS TO BE USED IN THE GOLF BALLS

8. I directed the preparation of two types of golf ball core materials. The first golf ball core material is based on the disclosure of Nesbitt 193. In particular, the core material has the following composition:

Material	**Weight**
Polybutadiene (BR-1220)	70.70
Polybutadiene (Taktene 220)	29.30
Zinc Diacrylate	31.14
Zinc Oxide	6.23
Zinc Stearate	20.15
Limestone	17.58
Ground Flash	20.15
Blue Masterbatch	0.012
Luperco 231 XL	0.89

This composition is based on the core composition set forth in the Sullivan patents, for example, '293 patent, col. 16:15-30. I based this core composition on that set forth in the Sullivan patents to represent the Nesbitt 193 core for two reasons. First, Nesbitt 193 does not set forth any core composition. Second, the Sullivan patents describe balls using this core composition as "representative of the [Nesbitt] '193 patent" and as "the prior art ball of the [Nesbitt] '193 patent." See, for example, '293 patent, col. 18:33-35; col. 19:6-8. The only difference between the core composition set forth above and that set forth in the Sullivan patents as representing the Nesbitt 193 core is that the composition above does not include Papi 94, while the Sullivan patents describe using a small (0.50 by weight) amount of Papi 94 in its description of the core composition. See, for example, '293 patent, col. 16:28. I decided not to use any Papi 94 in the composition of this core because of the difficulty of obtaining the

substance and the fact that it is a dangerous substance to work with. In my opinion, based on my experience, the absence of 0.50 by weight of Papi 94 in the core composition would have negligible or no effect on any measurements of hardness of the outer cover layer of a formed ball using that core composition. I will refer to this core material herein as **CORE_1**.

9. The second golf ball core material that was prepared at my direction is based on the disclosure of Proudfit 187. In particular, the core has the following composition:

Material	**Weight**
Polybutadiene (Taktene 220)	95.00
Vestenamer 8012	5.00
Zinc Oxide	12.20
Zinc Diacrylate	35.00
Antioxidant	0.80
Peroxide (Luperco 101 XL)	0.080
Liquid Monomer SR-351	5.00

This composition is set forth in Table 5 of Proudfit 187, col. 7: 56-68. I will refer to this core material herein as **CORE_2**.

10. I directed the preparation of three inner cover layer materials. The first inner cover layer material is based on the disclosure of Nesbitt 193. In particular, the inner cover layer material is Surlyn 8940 (formerly Surlyn 1605), which is described in Nesbitt 193, col. 3:26-30. I will refer to this inner cover layer material herein as **ICL_1**.

11. The second type of inner cover layer material that was prepared at my direction is based on the disclosure of Molitor 637. In particular, the inner cover layer material has the following composition:

Material	Parts
Surlyn 1605 (now 8940)	88.00
Surlyn 1557 (now 9650)	17.40
TiO2 Master Batch A	35.20
Blowing Agent Master Batch B	2.32

This composition is described in Molitor 637 in Table 2, col. 14:60-65. I will refer to this inner cover layer material herein as **ICL_2**.

12. The third type of inner cover layer material that was prepared at my direction is based on the disclosure of Proudfit 187. In particular, the inner cover layer material has the following composition:

Material	Blend Ratio
Surlyn 8940	75%
Surlyn 9910	25%

This composition is described in Proudfit 187 in Table 6, col. 8:25-30. I will refer to this inner cover layer material herein as **ICL_3**.

13. I directed the preparation of three outer cover layer materials. The first outer cover layer material is based on the disclosure of Molitor 637. In particular, the outer cover layer material has the following composition:

Material	Parts
Estane 58133	99.7
Ficel EPA	0.3

This composition is described in Molitor 637 in Table 10, col. 18:36-41. I will refer to this outer cover layer material herein as **OCL_1**.

14. The second outer cover layer material that was prepared at my direction is based on the disclosure of Wu 673. In particular, the outer cover layer material has the following composition:

Material	**Grams**
MDI prepolymer	100.00
Polamine 250	48.87
White dispersion	5.21

This composition is described in Wu 673 in Table I, col. 7:15-23. I will refer to this outer cover layer material herein as **OCL_2.**

15. The third outer cover layer material that was prepared at my direction is based on Molitor 751. In particular, the outer cover layer material has the following composition:

Material	**Parts**
Texin 480 AR (now 285)	90
Surlyn 1605 (now 8940)	10
TiO2	5
Fluorescent Brightener	0.10
Antioxidant	0.17
Pigment	0.02
Release Agent	1

This composition is based on Example 4 in the Table in Molitor 751, Col. 7-8:1-24. The only difference between this cover layer composition and that disclosed as Example 4 in Molitor 751 is that Example 4 used 10 parts of Surlyn 1702 (which is now designated 9970) rather than 10 parts of Surlyn 1605 (now 8940). Surlyn 1702 (now 9970) is disclosed in Molitor 751 as

having a Shore D hardness of 62, whereas Surlyn 1605 (now 8940) is disclosed in Molitor 751 as having a Shore D hardness of 65. These Shore D hardness properties are consistent with those set forth in the Dupont data sheet for its Surlyn resins. Accordingly, in my opinion, any hardness measurements of the material disclosed in Example 4 of Molitor 751 would be even softer (i.e. lower on the Shore D scale) than such measurements of the cover layer material that was prepared at my direction. I will refer to this outer cover layer material herein as **OCL_3**.

PREPARATION OF GOLF BALLS

16. At my direction, Acushnet personnel made golf balls using the materials described above. I directed Acushnet personnel to make nine (9) constructions of golf balls, and for each type of golf ball construction, twelve (12) sample balls were made.

17. The first golf ball construction used the Nesbitt 193 core material (**CORE_1**), the Nesbitt 193 inner cover layer material (**ICL_1**), and the Molitor 637 outer cover layer material (**OCL_1**). I directed Acushnet personnel to make the ball with a core diameter of 1.495 inches, an inner cover layer thickness of 0.035 inches, and an outer cover layer of 0.0575 inches. This is consistent with the description in Nesbitt 193. Specifically, Nesbitt 193 describes a core and inner cover layer whose total diameter is about 1.565 inches (which is consistent with a core whose diameter is 1.495 inches and an inner cover layer whose thickness is 0.035 inches). Nesbitt 193, col. 3:26-30. Nesbitt 193 also describes an outer cover layer whose thickness is 0.0575 inches, for a total ball diameter of 1.680 inches. Nesbitt 193, col. 3:39-40. I refer to this ball construction herein as **BALL_1**. Twelve (12) samples of these balls were made at my direction.

18. The second golf ball construction used the Nesbitt 193 core material (**CORE_1**), the Nesbitt 193 inner cover layer material (**ICL_1**), and the Wu 673 outer cover layer material (**OCL_2**). I directed Acushnet personnel to make the ball with a core diameter of 1.495 inches, an inner cover layer thickness of 0.035 inches, and an outer cover layer of 0.0575 inches. As set forth above, this is consistent with the description in Nesbitt 193. I refer to this ball construction herein as **BALL_2**. Twelve (12) samples of these balls were made at my direction.

19. The third golf ball construction used the Nesbitt 193 core material (**CORE_1**), the Nesbitt 193 inner cover layer material (**ICL_1**), and the Molitor 751 outer cover layer material (**OCL_3**). I directed Acushnet personnel to make the ball with a core diameter of 1.495 inches, an inner cover layer thickness of 0.035 inches, and an outer cover layer of 0.0575 inches. As set forth above, this is consistent with the description in Nesbitt 193. I refer to this ball construction herein as **BALL_3**. Twelve (12) samples of these balls were made at my direction.

20. The fourth golf ball construction used the Nesbitt 193 core material (**CORE_1**), the Molitor 637 inner cover layer material (**ICL_2**), and the Molitor 637 outer cover layer material (**OCL_1**). I directed Acushnet personnel to make the ball with a core diameter of 1.495 inches, an inner cover layer thickness of 0.035 inches, and an outer cover layer of 0.0575 inches. As set forth above, this is consistent with the description in Nesbitt 193. I refer to this ball construction herein as **BALL_4**. Twelve (12) samples of these balls were made at my direction.

21. The fifth golf ball construction used the Nesbitt 193 core material (**CORE_1**), the Molitor 637 inner cover layer material (**ICL_2**), and the Wu 673 outer cover layer material (**OCL_2**). I directed Acushnet personnel to make the ball with a core diameter of 1.495 inches, an inner cover layer thickness of 0.035 inches, and an outer cover layer of 0.0575 inches. As set forth above, this is consistent with the description in Nesbitt 193. I refer to this ball construction herein as **BALL_5**. Twelve (12) samples of these balls were made at my direction.

22. The sixth golf ball construction used the Nesbitt 193 core material (**CORE_1**), the Molitor 637 inner cover layer material (**ICL_2**), and the Molitor 751 outer cover layer material (**OCL_3**). I directed Acushnet personnel to make the ball with a core diameter of 1.495 inches, an inner cover layer thickness of 0.035 inches, and an outer cover layer of 0.0575 inches. As set forth above, this is consistent with the description in Nesbitt 193. I refer to this ball construction herein as **BALL_6**. Twelve (12) samples of these balls were made at my direction.

23. The seventh golf ball construction used the Proudfit 187 core material (**CORE_2**), the Proudfit 187 inner cover layer material (**ICL_3**), and the Molitor 637 outer cover layer material (**OCL_1**). I directed Acushnet personnel to make the ball with a core

diameter of 1.5 inches, an inner cover layer thickness of 0.0375 inches, and an outer cover layer of 0.0525 inches. This is consistent with the description in Proudfit 187. Specifically, Proudfit 187 describes a core and inner cover layer whose total diameter is 1.575 inches (which is consistent with a core whose diameter is 1.5 inches and an inner cover layer whose thickness is 0.0375 inches). Proudfit 187, col. 7:43-47. Proudfit 187 also describes an outer cover layer whose thickness is 0.0525 inches, for a total ball diameter of 1.680 inches. Proudfit 187, col. 7:43-47. I refer to this ball construction herein as **BALL_7**. Twelve (12) samples of these balls were made at my direction.

24. The eighth golf ball construction used the Proudfit 187 core material (**CORE_2**), the Proudfit 187 inner cover layer material (**ICL_3**), and the Wu 673 outer cover layer material (**OCL_2**). I directed Acushnet personnel to make the ball with a core diameter of 1.5 inches, an inner cover layer thickness of 0.0375 inches, and an outer cover layer of 0.0525 inches. As set forth above, this is consistent with the description in Proudfit 187. I refer to this ball construction herein as **BALL_8**. Twelve (12) samples of these balls were made at my direction.

25. The ninth golf ball construction used the Proudfit 187 core material (**CORE_2**), the Proudfit 187 inner cover layer material (**ICL_3**), and the Molitor 751 outer cover layer material (**OCL_3**). I directed Acushnet personnel to make the ball with a core diameter of 1.5 inches, an inner cover layer thickness of 0.0375 inches, and an outer cover layer of 0.0525 inches. As set forth above, this is consistent with the description in Proudfit 187. I refer to this ball construction herein as **BALL_9**. Twelve (12) samples of these balls were made at my direction.

26. All golf balls made at my direction were made with a dimple pattern, and were painted and finished.

TESTING OF GOLF BALLS

27. I accompanied Acushnet personnel to an independent third-party plastics testing laboratory to provide the golf balls that were made at my direction for testing. The laboratory is called Plastics Technology Laboratories, Inc. (PTLI). I personally inspected the test equipment

that was to be used, and personally directed the lab technicians at PTLI as to the tests to be performed.

28. PTLI is accredited by the American Association for Laboratory Accreditation in the field of Mechanical Testing in accordance with the recognized International Standard ISO/IEC 17025:2005 General Requirements for the Competence of Testing and Calibration Laboratories. PTLI is specifically accredited to perform the ASTM D2240 Durometer Hardness test.

29. I requested that PTLI conduct Shore D hardness measurements on the surface of the formed golf balls described above. Specifically the tests to be performed would be done in accordance with ASTM D2240, with the exception that the tests would be performed on the surface of the golf balls rather than on a plaque of material as required by ASTM D2240.

30. Prior to conducting the Shore D measurements, PLTI technicians conditioned the balls at 40+ hours at 23 degrees (+/- 2) Celsius and 50% (+/- 5%) Relative Humidity.

31. PTLI conducted Shore D hardness measurements on the balls I provided to them as I requested. For each ball specimen, PTLI took five readings on the Shore D scale between the dimples of the ball. For each ball specimen, these five readings were averaged. PTLI performed this process on all twelve samples of each ball construction, and provided for each ball construction an average Shore D hardness value for all twelve samples.

RESULTS OF TESTING

32. Each of the twelve ball specimens that were tested for each ball construction had an average cover hardness reading of below 64 Shore D. Each ball construction had an average cover hardness (over the twelve samples) of below 64 Shore D.

33. The following table sets forth the average Shore D hardness measurements (over the twelve samples) that were performed for each ball construction type:

Ball #	Core	Inner Cover Layer	Outer Cover Layer	Shore D
BALL_1	Nesbitt 193	Nesbitt 193	Molitor 637	62.0
BALL_2	Nesbitt 193	Nesbitt 193	Wu 673	56.0
BALL_3	Nesbitt 193	Nesbitt 193	Molitor 751	50.1[1]
BALL_4	Nesbitt 193	Molitor 637	Molitor 637	61.0
BALL_5	Nesbitt 193	Molitor 637	Wu 673	55.6
BALL_6	Nesbitt 193	Molitor 637	Molitor 751	49.6
BALL_7	Proudfit 187	Proudfit 187	Molitor 637	59.4
BALL_8	Proudfit 187	Proudfit 187	Wu 673	56.8
BALL_9	Proudfit 187	Proudfit 187	Molitor 751	51.2

34. I am informed that PTLI has retained the ball samples that it tested, and they remain available for further testing if necessary. I am also informed that PTLI has retained the test results if needed.

I declare under penalty of perjury that the statements above are true and correct.

Date: May 29, 2007

William J. MacKnight

[1] As I noted above, the outer cover layer material that was tested used a slightly harder Surlyn (1605, now 8940), than the Surlyn described in Example 4 of Molitor 751, so the hardness measurements using the outer cover layer material of Example 4 would be even softer than those set forth for Molitor 751 in this table.

IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF DELAWARE

CERTIFICATE OF SERVICE

I, David E. Moore, hereby certify that on June 1, 2007, a true and correct copy of the within document was caused to be served on the attorney of record at the following addresses as indicated:

VIA HAND DELIVERY

Thomas L. Halkowski
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919 N. Market Street, Suite 1100
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Wilmington, DE 19899-1114

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/s/ David E. Moore
Richard L. Horwitz
David E. Moore
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1313 North Market Street
Wilmington, DE 19899-0951
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dmoore@potteranderson.com

721875 / 30030

Exhibit 2

IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF DELAWARE

CALLAWAY GOLF COMPANY,
Plaintiff,
VS C.A. No. 06-91(SLR)
ACUSHNET COMPANY,
Defendant.

VIDEOTAPED DEPOSITION OF WILLIAM J. MacKNIGHT
Boston, Massachusetts
Thursday, August 2, 2007

Court Reporter:
Loretta Hennessey
RDR, CRR
JOB No. 69926

Q. Did you bring any documents or presentations with you to the meeting?
A. I don't recall. I don't believe that I did.
Q. You showed up empty-handed?
A. I don't recall that.
Q. You testified you're not sure exactly who came up with the idea to make these golf balls you described, correct?
A. Correct.
Q. Do you recall who came up with the idea of what tests to run on those golf balls?
A. No.
Q. Do you recall who came up with the idea of how to do those tests?
A. No, I don't.
Q. After your meeting with Mr. Lester and Mr. Dalton, what tasks were assigned to you as a result of that meeting?
A. I was assigned the task to direct the preparation and testing of the golf balls which are described in the patents which I have in my declaration, and that's what I did.
Q. Okay. Were you assigned that task by Mr. Lester or Mr. Dalton?
A. I believe that there was an interaction between

Mr. Lester and Mr. Rosenthal, and that they probably made the final decision, but I can't recall exactly which one.

Q. That is Mr. Rosenthal, the lawyer from Howrey?

A. I think so, yes.

Q. Given that you were assigned the task of directing the preparation and testing of these golf balls, what was your plan to complete that task?

A. Well, as it turned out, as noted in Paragraph 7, for example, we did, at my direction, several things. The golf balls were made at the Acushnet Research and Development Center, and they were then tested for flexural modulus and hardness, in some cases flexural modulus, but mainly hardness, at plastics testing.

And I should be careful not to misspeak. Clearly it's difficult to test a golf ball for flexural modulus. What you do is you test the material that goes into the construction.

Q. In Paragraph 7 of your declaration, you refer to these technical personnel at Acushnet's R&D Department?

A. Yes.

Q. Who were those personnel?
A. They were directed by Mr. Dalton. I do not recall or may never have known the names of any others that were associated with it.
Q. That is, these personnel were people who worked for Jeff Dalton?
A. That is my understanding.
Q. These technical personnel who created the golf balls, did you ever meet with any of them about that task?
A. I had a tour of the facilities when you had this meeting with Mr. Lester and Mr. Dalton, and I'm sure that I met some of them then. What specific ones and what specific tasks they performed, I don't know.
Q. The personnel who created these golf balls, you never directly told them to do that, right?
A. I worked through Mr. Dalton.
Q. And were you present when these personnel made these golf balls?
A. No, I was not.
Q. Was Mr. Dalton present when the golf balls were made?
A. I don't know.
Q. So in Paragraph 7 where you said, "At my

direction, technical personnel at Acushnet's Research and Development department created several golf balls," you weren't directing these personnel directly, correct?

A. My role was to agree or decide or suggest the golf balls' compositions, and then have them prepared at Acushnet. So I didn't direct them personally, no, in the sense of being present.

Q. In the next sentence you say, "In particular, I directed the preparation of 12 samples each of nine constructions of golf balls"?

A. Right.

Q. What do you mean there by you "directed the preparation"?

A. Well, again, I asked them to create those golf balls.

Q. Asked who specifically?

A. Mr. Dalton.

Q. And Mr. Dalton in turn turned this request over to his personnel?

A. That I don't know.

Q. Now, Mr. Dalton didn't create the golf balls himself, did he?

A. I don't know.

MR. BRANNON: Calls for speculation.

Q. He might have?
A. Again, I have no way of knowing.
Q. After these golf balls were created, did you have any further discussions with Mr. Dalton?
A. Yes.
Q. Regarding what?
A. Well, regarding the tests themselves, and this took place at a second meeting at the plastics testing facility which were used.
Q. That's the facility known as PTLI?
A. That's correct.
Q. Where is their facility located?
A. Pittsfield, Massachusetts.
Q. After your golf balls were created, did you have any discussion with Mr. Dalton about how they had been created?
A. I don't recall specifically, but I think we did.
Q. What did you do to insure that the balls had been prepared the way you had instructed them to be?
A. I took Mr. Dalton's word for it.
Q. And he said that they had been prepared in the manner that you had directed?
A. Correct.

Q. Did you perform any inspection of the balls after they had been created?
A. Other than visual inspection of the balls, which I did, that was the only thing.
Q. Okay. You looked at the balls?
A. I did.
Q. Did you handle them?
A. I did.
Q. Did these balls have dimples?
A. They did.
Q. Were they painted?
A. Yes, they were.
Q. Where did you conduct your inspection of these balls?
A. At the PTLI facility.
Q. Do you recall the date of that inspection?
A. I don't. But I'm going to say probably sometime in late May.
Q. At the time you inspected the balls that had been created by the Acushnet R&D personnel, how long had it been since those balls had been finished?
A. If I recall correctly, it was a matter of a week or thereabouts.
Q. Where had those balls been kept in the week or

so after their creation and before your inspection of them?

A. My understanding was that they were kept at the Acushnet facility and then transported to PTLI.

Q. Do you have any knowledge of how those balls were kept at the Acushnet facility; that is, under what conditions or where or how?

A. I believe we discussed that, but I don't recall it, so the answer is no, I don't.

Q. In Paragraph 7 of your declaration, you remark that there were nine golf ball constructions that you directed the creation of. Who directed what those nine constructions would be?

A. Well, again, I think we've already been through that. To the best of my knowledge it was a iterative process which involved myself, Mr. Rosenthal, Mr. Lester and Mr. Dalton.

Q. Was there any special significance to selecting the number 12 as the number of samples to be made from each construction?

A. There wasn't a great deal of significance. We wanted something which would be reasonable statistically, and also the number 12 was mentioned in one of the patents, I believe the

of polybutadiene, and using the same units, you would put in those amounts of the other materials. So that means you would put in, using those same units, .5 of the Papi. And if you wanted to make twice as much, of course you would double everything. That's how it works.

Q. So the .5 is just an arbitrary unit meaning grams or kilograms or --

A. Right. It's not a percentage; it's just a parts by weight. Sometimes they use parts by hundred, this is parts by weight.

Q. Before this project, were you familiar with the convention of formulating compositions by weight?

A. Well, I was of course generally familiar with it. I wouldn't use it scientifically in a paper, but of course I had come across it in my consulting business, and also, as I mentioned, in cooking in the recipes in the kitchen.

Q. Prior to undertaking this project with Acushnet, had you ever been involved in making golf balls before?

A. I had never been involved in making golf balls, no.

Q. Did you have any involvement with the design or

construction of golf balls before this engagement with Acushnet?

A. Not directly. I was involved in a prior litigation involving golf balls between Acushnet and the predecessor company, Spalding, but I've never done any research work along the lines that you mentioned or technological work.

Q. Do you have any idea why Acushnet selected you as the consultant to direct this work?

A. Well, let me back, first say that I am a materials expert in this sense; polymer science and engineering expert, if you like, more broadly. And specifically, I am very experienced with both ionomers and polyurethanes, through my own research work, through my consulting and other things.

And since those materials seem to be quite relevant to a number of the issues involved in this case, I was not terribly surprised that they would have selected me for that.

Q. Did you have any concerns about being selected to direct the construction of golf balls, having never done that kind of work before?

A. No, because my main role was in the properties

of the materials that went into the construction, not the golf balls themselves.

Q. So with respect to the making of the golf balls themselves, did you have any input or direction as to how exactly they were constructed rather than the materials they were constructed out of?

A. I left the details to Mr. Dalton.

Q. Whose idea was it to have these test golf balls made in Acushnet's own laboratories?

A. Well, I can't recall exactly on that either, but it must have come up in the meeting that we had with those personnel. And, again, it may also have involved Mr. Rosenthal. But to give the short concise answer, I can't -- I don't really know.

Q. The meeting you're referring to is your meeting with Mr. Lester and Mr. Dalton?

A. That's right.

Q. Was there ever any discussion of having an outside laboratory fabricate these golf balls?

A. I don't recall.

Q. You don't know if it was ever considered to have an outside laboratory fabricate these golf balls?

A. Strictly speaking, I don't, no.
Q. In other words, if it was ever considered, no one ever told you they were considering it?
A. That is not what I said.
Q. Well, but that's what I asked.
A. All right then, I'll answer what you asked, or try to, at least.

I think, and I'm almost speculating now, that I brought up the idea, or perhaps they did, but someone did, of having an outside outfit prepare the golf balls.

Q. Do you recall what the resolution of that idea was?
A. Well, the result was it was done in-house, so it must have been decided to do it in-house.
Q. Okay. So somebody mentioned the possibility of doing it with an outside laboratory, but that idea was rejected in favor of doing it in-house?
A. I'm not sure that it was even raised to the point of an either/or type of thing, but certainly I can state almost certainly that the idea was mentioned, and that the resolution was to do it in-house. That's as much as I remember.

Q. The personnel who made these golf balls got their instructions from Mr. Dalton who got them from you; is that right?
A. Right.
Q. And by "instructions," I mean the instructions to make certain types of balls rather than how to make them. So let me ask a different question.

The direction that came from you to the people who actually made the balls was what kind of balls to make, correct?
A. Correct.
Q. You did not direct how to make those balls, correct?
A. No.
Q. Were you present when Mr. Dalton relayed your instructions to his personnel?
A. No, I was not.
Q. Do you know how he gave them those instructions?
A. No.
Q. Do you know if he created any documentation memorializing those instructions?
A. No.
Q. Did you create any documents regarding your

instructions to Mr. Dalton?
A. No.
Q. Let's turn to Paragraph 8, Page 3 of your declaration. The first sentence of Paragraph 8 says, "I directed the preparation of two types of golf ball core materials."
Who selected these two types of golf ball core materials to be made?
A. The eternities -- attorneys, excuse me.
Q. Do you know how they made that selection?
A. To some extent, yes.
Q. Can you explain your understanding of that?
A. Yes. The core that we're looking at -- well, let me be more specific. On Page 8 there's a table which discloses a composition of a core, and that was taken from the Sullivan patent which is abbreviated as '293.
Q. Okay. So the table on Page 3 is a core composition described in the Sullivan '293 patent?
A. Yes.
Q. It's not described in the Nesbitt '193 patent, right?
A. That's correct.
Q. Okay. So what do you mean when you say in

Paragraph 8, "The first golf ball core material is based on the disclosure of Nesbitt '193"?

A. As I state further down the page, Sullivan described the core which is set forth in the, the composition of which is set forth in the table as being representative of the Nesbitt '193 patent and as the prior art ball of the Nesbitt '193 patent. That is my understanding of the basis for using that core in that context.

Q. So without the Sullivan patent's description, how would you know what kind of core the Nesbitt '193 patent contemplated?

A. You wouldn't know directly, other than that he just mentions a solid core, which is all he says. He doesn't give a detailed recipe for a particular core.

Q. Do you have any understanding of why Mr. Sullivan in his patents characterized the Nesbitt core the way he did?

A. Actually, I do not. I assume he has some knowledge which I don't, and I took it as read.

Q. Have you ever spoken to Michael Sullivan?

A. Many times.

Q. Have you ever spoken to Dennis Nesbitt?

A. I don't know Dennis Nesbitt.
Q. So that's a no?
A. No.
Q. Okay. No, it's not a no, or --
A. Well, in the sense that I had visited the former Spalding facility on more than one occasion, because it's right in my backyard, so to speak, Chicopee, and I had a student who actually worked there for a number of years. And so I met a number of people, and Mr. Nesbitt could have been one, but he was never identified to me as such, so that I could have spoken to him without knowing it, I guess, to be exactly accurate.
Q. Okay. I didn't mean to be cute. I --
A. No, no, I'm sure you didn't. And I shouldn't have gone through that either. Let's just say I don't think so.
Q. Okay. Fair enough.
Have you ever spoken to Michael Sullivan in connection with your work on this case?
A. No.
Q. Did you ever consider talking to Mr. Sullivan about your work on this case?

A. It started back in the early 1980s.
Q. Okay. So it's probably not the same case I'm thinking of --
A. Probably not.
Q. -- that wound up in '96?
A. I don't think so, but I don't know.
MR. BRANNON: I think it's the '90 settlement agreement; it was a 1990 settlement agreement.
MR. SHUMAN: Okay. That helps.
Q. What was your role, Dr. MacKnight, in the Acushnet/Spaulding litigation over the Molitor blended ionomer patent?
A. I was retained as an expert.
Q. By Acushnet?
A. By Acushnet.
Q. Do you recall the general topic of your testimony?
A. I didn't testify in that case.
Q. Were you deposed in that case?
A. I was not.
Q. Did you give an expert report in that case?
A. I gave an affidavit.
Q. Declaration?
A. I suppose -- I frankly don't understand what

the legal terms mean.
Q. I've always used them interchangeably.
A. Okay. Then that would be correct.
Q. Okay. Do you remember what the substance of your affidavit was?
A. Honestly, I don't, but it had to do with an identical composition of matter arrived at by preparing ionomer blends in different ways. Let's put it -- that's vague, but, I'm sorry, that's the best I can do.
Q. I understand. It's kind of a long time ago.
Oh, before I go on, have you ever met or spoken to Terry Melvin?
A. No.
Q. Okay. Well, then, I don't need to ask any more questions about him.
Let's go back to your declaration, paragraph 10 on Page 4.
A. Yes.
Q. Paragraph 10, you say, "I directed the preparation of three inner cover layer materials." Who selected those materials?
A. The attorneys.
Q. Similarly, let's turn to page 5, Paragraph 13 where you say, "I directed the preparation of

three outer cover layer materials." Who selected those materials?

A. The attorneys.

Q. So the selection of the core materials, inner cover materials and outer cover materials in the golf balls you made were all made by attorneys, correct?

A. Correct.

Q. Those were the attorneys at the Howrey law firm?

A. Correct. That would be specifically Mr. Rosenthal.

Q. Given that Mr. Rosenthal selected the materials for the core and cover layers of these golf balls, what was your responsibility related to the creation and testing of these golf balls?

A. My responsibility was to see that the testing was carried out properly and that true experimental results were obtained from it.

Q. Did you direct in any way the selection of materials or manner of construction for these golf balls?

A. We discussed some of that before. I was certainly consulted about some of the issues involved, and that's what I can say.

Q. And you testified that other than the Papi 94 issue, you were not otherwise consulted about how to construct the golf balls?

MR. BRANNON: Objection, mischaracterizes.

A. The injection molding issue, for example.

Q. That's correct.

A. Another issue --

Q. Other than the Papi 94 and injection molding issue, were there any other ways --

A. Yes.

Q. -- in which you were consulted about the construction of the golf balls?

A. Yes, whether they should be painted or not.

Q. Did you make a decision on that issue?

A. I had an input on that issue.

Q. What was your input?

A. I decided that it should, in my opinion.

Q. Why?

A. Because I thought, and this is based on limited knowledge, that we wanted to make as realistic a golf ball as we could.

Q. Were there any other ways in which you contributed input as to how the golf balls were to be created?

Q. And this is the Molitor '637 inner cover layer recipe, right?
A. Correct.
Q. You've read the Molitor '637 patent?
A. I have.
Q. What do you understand the general subject matter of the '637 patent to be?
MR. BRANNON: Let's mark it?
MR. SHUMAN: Yeah, let's mark it.
A. I better look at the patent before I give --
MR. BRANNON: He's going to give you an exhibit.
A. -- to answer that.
Q. To be fair and refresh your memory, let's put it in front of you.
A. I think I know, but I don't want to do it until I look at it.
MR. SHUMAN: That's fine. Let's mark the '637 patent, then, as Exhibit 3, please.
(Document marked as Exhibit 3 for identification.)
(Document exhibited to witness.)
Q. Okay. Let me know when you're ready to proceed.

A. Okay. Thank you.
All right. I think I'm ready.
Q. Okay. Having looked over the '637 patent just now, how would you characterize the general subject matter of that patent?
A. The patent has to do again with a cover.
Q. What kind of cover?
A. A cellular foamable cover I think is how it's described. In other words, it's a synthetic polymeric cover which can be foamed.
Q. The covers Molitor is describing are foamable, or are they are in fact foamed?
A. They're foamable, and I think in all cases that he described it, they're foamed, the examples.
Q. Cellular and foamed are synonymous?
A. Correct.
Q. Let's turn to column 5 of the '637 patent.
A. Yes.
Q. Take a look at line 5, if you will.
A. Sure.
Q. The sentence there is, "While full parameters of the covered thickness have not been explored, it generally appears as though functionable foaming cannot be achieved," blah, blah, blah.

Do you have any understanding of what "functionable foaming" means in that sentence?

A. I have a general understanding, yes.

Q. What do you understand "functional foaming" to mean in that sentence?

A. Well, I think in the context which we're discussing here, it would mean a softening of the material, if you like, over what it would have had it not been foamed at all. Take the hardness, if you like, or any other measurement of -- it's softer, flexural modulus, after foaming than before.

Q. That is, the foaming process makes the material softer than it would have been had it not been foamed?

A. Had it not been foamed, correct. I think that's a reasonable characterization.

Q. The sentence goes on to say this "functional foaming cannot be achieved, when the cover is injection molded onto the center, if the cover thickness decreases below .060 inches." Do you see that?

A. I do.

Q. Do you have any understanding of what Molitor

means by that passage?

A. Well, I suppose it means that the blowing agent that is used is not effective at the thinner thicknesses below .060. I'm not sure that that would be universally and absolutely true, but I would think that it might be possible to find a blowing agent which would be effective at lower thicknesses, but this is what he states in any case.

Q. Can you think of any reason why the blowing agent wouldn't be effective for covers below 60 mils thickness?

A. Yes.

Q. Why might a blowing agent not be effective at creating a foamed cover if that cover is less than 60 mils thick?

A. Well, the foaming process is dependent upon trapping bubbles of gas within the material. And we've all seen this in, for example, even the foam of the soda that you have: It's bubbles of gas come out.

Now, the only difference here is that instead of a liquid, this sets up into a solid, but it's got the bubbles of gas trapped into it. That's the foam of the cells, if you

like.

Now, if the material gets very thin, it may be that these bubbles can escape at the very, very low thickness of the material during the processing, and therefore there are few bubbles left in and not enough to be significant, perhaps.

Does that make sense?

Q. I believe it does.

When you were discussing making your test golf balls with Acushnet personnel, was there any discussion about Molitor's '637 describing cellular or foamed compositions?

A. I don't recall exactly any discussion on that point.

Q. Do you know whether the cover layers made from the Molitor '637 composition in your test golf balls did in fact have a cellular foamed structure?

A. No.

Q. Did you do any testing to ascertain whether or not those covers were in fact foamed?

A. No.

Q. Did you consider making any verification that they were foamed?

A. No.
Q. Did anyone else mention the significance of having a foamed cover as opposed to one that wasn't?
A. No, other than the general idea that a foamed cover would be not as hard as a non-foamed cover, softer than a non-foamed cover.
Q. Okay. To your knowledge, when your test golf balls were made, were there any measures taken to ensure that the Molitor '637 covers had a cellular or foamed structure?
A. No.
Q. And so sitting here today, you don't know whether those '637 covers actually were or were not cellular, that is in the golf balls you describe in your report?
A. Were, yeah, or foamed, if you like. There was a blowing agent in there, and I assume that they probably were, but I don't know.
Q. Can we turn to Paragraph 17 of your declaration. You state there that you directed Acushnet personnel to make a ball having an outer cover layer of .0575 inches. Do you see that?
A. I do.

Q. And in the construction described in Paragraph 17, that outer cover layer is the so-called Molitor '637 outer cover layer material, right?
A. Say that -- excuse me, could you say that again?
Q. In the golf ball described in Paragraph 17, the outer cover layer material is what you call the Molitor '637 material, right?
A. Correct.
Q. To your knowledge, did Acushnet's personnel encounter any problems making the outer cover layer of this ball, the cover that comprises the '637 material?
A. I was not made aware of any problems in formulating any of the balls.
Q. Towards the bottom of the paragraph, it says, "Nesbitt 193 also describes an outer cover layer whose thickness is .0575 inches." Do you see that?
A. I do.
Q. Who selected the thickness of the outer cover layer for the ball described in Paragraph 17?
A. Well, again, the attorneys selected that.
Q. Okay. So the attorneys selected the cover thicknesses for all the balls described in your

report?
A. I believe so, yes.
Q. Did you advise the attorneys in any way on how to select those cover thicknesses?
A. They were generally selected on the basis of what was discussed in the patents, so I checked through the patents so see that the figures were consistent with what was reported.
Q. Let me ask you a very general question.
A. Yes.
Q. Do you have any opinions regarding whether the Sullivan patents at issue in this case are valid or not?
MR. BRANNON: Objection; calls for a legal conclusion.
A. I do not have any opinions.
Q. Have you ever been asked to formulate an opinion as to whether the patents in suit are valid?
A. No.
Q. What is your understanding of how your work in this case relates to the question of validity?
A. My understanding is that the results of the tests which we performed are relevant to the validity or invalidity of the patents.

Q. Relevant in what way?
A. I actually don't know in detail.
Q. Do you know generally?
A. I think it has to do with the fact that the hardness results came out at a certain figure which would be consistent with prior art results.
Q. Let's turn to Page 11 of your declaration, please. The table at the top of Page 11 discloses the core, inner cover and outer cover compositions for the nine constructions you're discussing, right?
A. Correct.
Q. Each of these balls represents some kind of combination of the teachings of the prior art, right?
A. That's correct.
Q. That is to say, none of these nine constructions reflects purely a Nesbitt ball or purely a Proudfit ball or purely a Molitor ball, right?
A. I think that's correct. In as much as the cores in some cases were not specified, it's possible that some of them could be. For example -- well, I'll leave it at that.

Q. Okay. But, for example, ball 4 has a Molitor '637 inner cover and also a Molitor '637 outer cover, correct?
A. Yes, yes.
Q. Was there any discussion of whether a ball should be made representing only a single one of these prior art patents?
A. I don't recall any such discussion.
Q. Regarding ball 4 here, you testified earlier about whether or not the cover's made from the Molitor '637 composition were foamed, and just to make the record clear, you didn't confirm that the '637 cover layers you made were foamed either as inner cover layers or outer cover layers, correct?
A. Correct.
Q. Before this case, had you worked with PTLI before?
A. No.
Q. Whose idea was it to retain PTLI for the testing?
A. It could have been mine because although I hadn't worked with them before, I had known about them, because I had considered working with them before. But, again, I don't recall

paragraph 30, are those related in any way to the ASTM D2240 specification?

A. Yes. Except for the time period, they are in fact contained within the ASTM specification.

Q. Does the D2240 specification provide any time parameters for conditioning?

A. Not that I recall.

Q. You mentioned that changes in the hardness of the layers would probably be minimal after one or two weeks, right?

A. Correct.

Q. Why would two weeks be significant in that respect?

A. Well, there's nothing of any absolute significance. This is based on my experience and knowledge of how ionomers and polyurethanes behave.

Typically what happens is if there is going to be a change in a property such as hardness, it occurs fairly rapidly after the material has been formulated, and subsequently very, very slowly and over a long period of time. So you would get something like, if you like, a very rapid rise in the change. And it may not be a big change, but whatever change is

going to take place takes place fairly rapidly.
So that in my judgment as an expert in polymer science and polymer materials and ionomers and polyurethanes in general, I would judge the bulk of that process would take place in the first week or two of the material being formulated.

Q. When PTLI conducted the hardness measurements on the surface of these test golf balls, were you present during that testing?

A. No.

Q. So you didn't observe them doing it?

A. No, I didn't.

Q. Do you know what kind of durometer they used for this testing?

A. Yes, I saw that, uh-huh.

Q. What kind of durometer was used for the hardness testing of these balls?

A. Well, again, I know exactly what it is, but I, to be careful, I would like to consult the relevant document, which you might want to...

MR. BRANNON: Do you want to mark that?

MR. SHUMAN: Yeah, this would be a good time to mark that.

THE WITNESS: You might as well bring that in.

Q. I'll just have to figure out where I put my copies of it. It's this one, right? (Indicating.)

A. That's correct.

MR. SHUMAN: All right. This will be MacKnight Exhibit 4.

(Document marked as Exhibit 4 for identification.)

(Document exhibited to witness.)

A. Okay.

Q. Okay. So looking at MacKnight Exhibit 4, first of all, what is Exhibit 4?

A. It's a report of data obtained by PTLI on some of the golf balls in question and also on the materials that went into making up the covers, specifically the flexural moduli and the hardness measurements.

Q. Okay.

A. It's incorporated in that all the hardness measurements are in the table of my report.

Q. And these -- excuse me. Exhibit 4 represents the testing results PTLI obtained upon your personal request, right?

A. Well, it looks to me again like it's showing the bar in another view, but until we got the, really, the original photographs, I couldn't, you know, comment in particular. What it is, and it would show very clearly if we had the right photographs, is a depiction of the apparatus, which is the kind of thing where you, well, you support the material on a sort of three-point, if you like, a couple of saw horses, if you want to use that terminology, then you push down on it from above.

Q. Okay.

A. All right?

MR. BRANNON: I can try and get better copies of those photos --

THE WITNESS: We can get the photos.

MR. BRANNON: -- and get them produced.

MR. SHUMAN: Okay. I appreciate that.

Q. Dr. MacKnight, the date on all of these reports appears to be May 22, 2007.

A. Yes.

Q. Do you know if that was the same date that you and Mr. Lester and Mr. Dalton visited PTLI?

A. Well, I'm assuming it would be subsequent, because they have all the results, and they didn't get the results on the day we visited.
Q. Okay.
A. We just went through and outlined what they would do. And then they had to condition the balls as well. So one would assume that it was at least 40 plus hours down the line.
Q. That's right.

What was the actual date of your meeting with PTLI?

A. I have that, but I don't know if I can tell you. I'll try.

I believe, subject to correction, it was the 17th of May, a Thursday.

Q. Okay. And that's the date that you're estimating based on consulting your date book?
A. Yes.
Q. And the test golf balls were present at PTLI on the 17th of May when you visited there, right?
A. Yes. But I must amend that to say that I believe, if I recall correctly, that there was a final batch that had just been made or was being made that was delivered by Federal Express or some means such as that to PTLI over

the weekend or at the next Monday at the latest.

Q. Do you have any idea which batch of balls that would be?

A. Not off the top of my head, no.

Q. For the batches of balls that PTLI tested, is there any way to reliably determine how long it had been between their manufacture and their hardness measurements?

A. Well, I would think so.

Q. Well, how would you do that if you had to figure it out?

A. I would go back to Mr. Dalton and say, "When did you make the ball?" Then I would go to PTLI and say, "When did you make the measurement?" And I would deduce that from that.

Q. Sitting here today, however, you don't know exactly how long had elapsed between the balls' manufacture and their measuring?

A. No.

Q. On the hardness measurements, these reports mention that the analyst was a Mr. J. McCarthy. Do you see that?

A. Yes, I do.

Q. Did you ever meet Mr. McCarthy, or Ms. McCarthy, possibly?
A. I'm pretty sure that I did, although I'm so bad with names, I can't remember the names of the people that I met at PTLI, but he must have been one of them.
Q. It says, "Customer: Acushnet Company, attention Troy Lester."
When these results were finished, they were sent directly to Mr. Lester?
A. I would assume so. He was paying the bills, so I guess that's why they're sending it to him.
Q. Okay. They weren't sent to you directly?
A. Not directly, no.
Q. When did you first see these test results?
A. Shortly after they were completed, which would have been towards the end of May.
Q. And you received them from Acushnet?
A. I can't recall whether it was from Acushnet or from Mr. Rosenthal, but in any case, it was one of the two.
Q. Generally speaking, what was your reaction to the Shore D hardness testing results?
A. I felt they were consistent and seemed perfectly reasonable.

material.

And so what they did was they took the materials which were in the form of films which they received from Mr. Dalton and punched out these disks and then used them to make the measurements.

Q. I'm sorry, the disks were punched out of some larger material?

A. Correct.

Q. What was the larger material?

A. The material that had been used to make the golf ball covers, whatever they might be.

Q. Were these disks what we've been calling plaques in the --

A. Yes.

Q. -- context of D2240?

A. Sure. Yes.

Q. How big were they?

A. I've forgotten.

Q. Any general idea?

A. No. Well, not huge, certainly, but big enough to satisfy the specifications.

Q. Who did the punching out to form the disks?

A. PTLI.

Q. Where did they get the material from which they

created the disks?
A. From Mr. Dalton.
Q. In what form did Mr. Dalton provide them that material?
A. A film.
Q. When you say "film," I'm thinking of something thin.
A. Oh, no, no, I'm sorry. This is a polymer term. A film can be anything from -- say a plaque, if you like that terminology better.
Q. Okay. So Mr. Dalton provided PTLI sort of a large plaque of material?
A. Right.
Q. And they punched these disks out of that?
A. Exactly.
Q. I see.
A. I'm sorry.
Q. Do you have any idea how that plaque from which these disks were prepared was itself made?
A. No.
Q. But it was done by Mr. Dalton or his personnel?
A. Correct.
Q. Let me ask you this: In your report and declaration that you've submitted in this case, do you include anything that you would call an

opinion as opposed to a fact?
A. Well, that's an interesting thing. We were discussing this. It seems to me it's more of a factual report than it is an opinion report. I don't really see any significant opinions in it.
Q. Can you describe the process by which your expert report and declaration were written?
A. Yes. It was an iterative process between myself and Mr. Rosenthal in which we exchanged drafts of portions of the report, amending and editing as we did, as we went; and then finally reaching a final state which you have in your hand, which was then approved by me as my true and correct declaration.
Q. Who did most of the typing of your report?
A. The final typing -- well, I think, as a matter of fact, Mr. Rosenthal's office did most of the typing.
Q. But you're satisfied that everything in here is your opinion and that you believe it to be true and correct?
A. I stand by it.
Q. Fair enough.
Let's turn back to your declaration,

Page 7, please. At the top of Page 7 is a continuation of Paragraph 15 from the previous page. The first full sentence there is, "These Shore D hardness properties are consistent with those set forth in the Dupont data sheet for its Surlyn resins." Do you see that?

A. Yes.

Q. What Dupont data sheet are you referring to there?

A. There are several Dupont data sheets referenced in the patents, and this could be the one in the Sullivan patent, I would have to go through in detail and check it out, but it's in one of the patents. But it's also true that from my knowledge of Surlyn properties that I've seen before, this is not inconsistent with that.

Q. In connection with preparing this declaration, did you consult the Dupont data sheets you're referring to?

A. I didn't directly. The only thing I consulted were the patents.

MR. BRANNON: Objection, mischaracterizes the report.

MR. SHUMAN: Well, I don't want to do that. In fact, Mr. Brannon, can I ask you

Exhibit 3

IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF DELAWARE

CALLAWAY GOLF COMPANY,	)	
	)	
Plaintiff,	)	C.A. No. 06-91 (SLR)
v.	)	
	)	
ACUSHNET COMPANY,	)	
	)	
Defendant.	)	

EXPERT REPORT OF DR. ROBERT J. STATZ

TABLE OF CONTENTS

I. INTRODUCTION

1. My name is Dr. Robert J. Statz. I submit this report to describe my opinions regarding the invalidity of U.S. Patent Nos. 6,210,293 ("the '293 patent"), 6,503,156 ("the '156 patent"), 6,506,130 ("the '130 patent") and 6,595,873 ("the '873 patent"). Specifically, my report includes the following: (I) an explanation of my qualifications to testify as an expert in this matter; (II) a brief statement of my opinions with regard to the issues of invalidity; (III) background information regarding the development of cover materials for golf balls; (IV) a statement of the legal standards applied in my analysis; (V) a summary of the key prior art I rely on in my analysis; (VI) my analysis of the disputed claim construction issues; (VII) my analysis that each claim of the patents-in-suit is invalid because it is anticipated and/or rendered obvious by the prior art; (VIII) my analysis of the secondary factors to be considered with regard to obviousness; and (IX) a conclusion.

A. Qualifications

2. I am a consultant in the field of polymers and polymer modification. I received my B.S. in physical and organic chemistry from American University in 1963, my M.S. from American University in 1964, and my Ph.D. from the University of Maryland in 1968 where my thesis work was on polypropylene. From 1968 until 2001 I was employed by E.I. duPont & de Nemours Co. ("duPont") in Wilmington, Delaware.

3. I was engaged in research on engineering polymers at duPont's Experimental Station from 1968 to 1971.

4. From 1971 to 1974 I was employed by duPont at their research facilities at Sabine River works where I engaged in research on ionomers. Ionomers are ionic polymers used, among other places, in making golf balls.

5. From 1974 to 1979 I was engaged in research on catalysts to produce methyl methacrylate and on polymers to produce hot melt adhesives and modify PVC.

6. From 1979 until I retired I was engaged in research to produce new ethylene copolymers for new markets. This research resulted in 35 U.S. patents on which I am a named inventor, and millions of dollars/year of sales for duPont.

7. In 1979, we started a research product to make ionomers specifically designed for the golf ball industry. Prior to this time, golf ball companies typically used ionomers that had been developed for other industries, such as the packaging industry.

8. From 1979 through my retirement from duPont, I was actively involved in the development of ionomers and other materials for use in golf ball construction, including cover layers of golf balls.

9. During the time that I worked on materials for golf balls, I worked closely with researchers and scientists at virtually all of the major golf ball companies, including Wilson, Dunlop, Ram, Spalding, Titleist and Bridgestone, in their development of golf ball materials, including materials for use in covers of golf balls. My work led to at least 11 patents on which I am a named inventor specifically related to the design of golf balls and golf ball materials.

10. My experience over the 20 plus years in which I worked on golf ball material design has given me broad expertise in the area of golf ball construction, and in particular with respect to golf ball cover and core materials. This experience includes the following:

a. In the early 1980s, my research led to the development of lithium ionomers for use as a hard, stiff cover material in the golf ball industry. This was the first new commercial ionomer produced in 25 years, and it was made exclusively for use in the golf ball industry.

b. After the development of lithium ionomers, also in the 1980s, my research team undertook a new research project, working with Wilson, to design a cover material that would perform like balata. This led to a family of polymers that we called Very Low Modulus Ionomers that, on a wound ball, had the click and feel of balata. While these ionomers had the click and feel of balata, they did not have the durability of Surlyns.

c. In the early 1980s, my team worked closely with Spalding to develop a replacement for Spalding's cover material that consisted of a blend of urethane and ionomer. During the course of this work, we did research to develop ionomers that would give similar or better properties than the polyurethane/ionomer blends, and better properties than polyurethane alone. To this end, we developed very soft ionomers, such as Surlyn 1856 (renamed 8320). We then produced blends of these very soft ionomers with stiffer, standard ionomers. Again, these were designed for use as golf ball cover materials, and Spalding used these blends as a replacement for their blend of polyurethane and ionomer cover materials.

d. In the mid 1980s, my team developed blends of lithium ionomers and Very Low Modulus Ionomers for use as golf ball covers.

e. In the mid to late 1980s, my team began work on the development of high acid (>16%) ionomers, which produced golf ball cover materials that were harder and stiffer than low acid standard ionomers. This work was begun with Dunlop, and the cover materials that we developed were (and still are) used in distance golf balls.

f. In the early 1990s, my team developed ionomers that were easier to process into covers because they flowed better than standard ionomers, without degrading the important golf ball properties desired by golf ball designers, such as abrasion resistance, coefficient of restitution (COR), etc.

g. In the early 1990s, I also worked with others at duPont to develop more resilient Hytrel materials for use as an inner golf ball cover. I understand that this cover material was used in commercial Titleist balls.

h. In addition in the 1990s, I helped develop an injection molding resin which can replace thermoset cores and /or give one-piece golf balls which will meet or exceed the distances obtained from crosslinked polybutadiene.

i. Throughout the 1990s we continued to research and develop new cover materials and core materials.

11. My resume is attached as Exhibit A.

B. Prior Testimony/ Compensation

12. I have not testified in any matters during the last four years.

13. I am being compensated at $150/hour for the time it takes me to study and prepare opinions, and to testify in this matter.

C. Information Considered

14. In addition to my general knowledge gained as a result of my experience in the field of polymer chemistry and designing golf ball cover and core materials, I have reviewed and considered, among other things, the patents-in-suit and their prosecution histories, the reexamination requests on the patents-in-suit filed by Acushnet, the office actions in those reexaminations, Callaway's response thereto, and Acushnet's comments thereto. I have also reviewed the prior art references discussed in the invalidity analyses provided below, and documents cited herein. Appendix B to this report sets forth the full list of documents I have reviewed, in whole or part.

II. STATEMENT OF OPINIONS

15. I understand that Callaway has not asserted claims 3 and 6 of the '293 patent, claim 3 of the '130 patent, and claims 2, 4, 5, and 6 of the '873 patent against Acushnet in this case. Thus, I have been asked to confine my analysis to the remaining claims of the patents-in-suit (claims 1-2, 4-5, and 7-8 of the '293 patent, claims 1-11 of the '156 patent, claims 1-2 and 4-6 of the '130 patent, and claims 1 and 3 of the '873 patent). I reserve the right to provide opinions about the validity of additional claims should the need arise.

16. It is my opinion that claims 1-2, 4-5, and 7-8 of the '293 patent, claims 1-11 of the '156 patent, claims 1-2 and 4-6 of the 130 patent, and claims 1 and 3 of the '873 patent are

anticipated by U.S. Patent No. 4,431,193 to Dennis R. Nesbitt ("Nesbitt"), issued Feb. 14, 1984, under 35 U.S.C. § 102(b).

17. It is my opinion that claims 1-2, 4-5, and 7-8 of the '293 patent, claims 1-11 of the '156 patent, claims 1-2 and 4-6 of the 130 patent, and claims 1 and 3 of the '873 patent would have been obvious under 35 U.S.C. §103(a) over Nesbitt in view of U.S. Patent No. 4,274,637 to Robert P. Molitor ("Molitor '637"), issued Jun. 23, 1981.

18. It is my opinion that claims 1-2, 4-5, and 7-8 of the '293 patent, claims 1-11 of the '156 patent, claims 1-2 and 4-6 of the 130 patent, and claims 1 and 3 of the '873 patent would have been obvious under 35 U.S.C. §103(a) over Nesbitt in view of U.S. Patent No. 5,334,673 to Shenshen Wu ("Wu"), issued Aug. 2, 1994.

19. It is my opinion that claims 1-2 and 4-5 of the '293 patent, claims 1-11 of the '156 patent, claims 1-2 and 4-5 of the 130 patent, and claims 1 and 3 of the '873 patent would have been obvious under 35 U.S.C. §103(a) over Nesbitt in view of U.S. Patent No. 4,674,751 to Robert P. Molitor ("Molitor '751"), issued Jun. 23, 1987.

20. It is my opinion that claims 1-2, 4-5, and 7-8 of the '293 patent, claims 1-11 of the '156 patent, claims 1-2 and 4-6 of the 130 patent, and claims 1 and 3 of the '873 patent would have been obvious under 35 U.S.C. §103(a) over U.S. Patent No. 5,314,187 to James R. Proudfit ("Proudfit"), issued May 24, 1994, in view of Molitor '637.

21. It is my opinion that claims 1-2, 4-5, and 7-8 of the '293 patent, claims 1-11 of the '156 patent, claims 1-2 and 4-6 of the 130 patent, and claims 1 and 3 of the '873 patent would have been obvious under 35 U.S.C. §103(a) over Proudfit in view of Wu.

22. It is my opinion that claims 1-2 and 4-5 of the '293 patent, claims 1-11 of the '156 patent, claims 1-2 and 4-5 of the 130 patent, and claims 1 and 3 of the '873 patent would have been obvious under 35 U.S.C. §103(a) over Proudfit in view of Molitor '751.

23. It is my opinion that claims 1-3 of the '130 patent are anticipated by Proudfit.

24. It is my opinion that claims 1-2, 4-5, and 7-8 of the '293 patent, claims 1-11 of the '156 patent, claims 1-2 and 4-6 of the 130 patent, and claims 1 and 3 of the '873 patent would

have been obvious under 35 U.S.C. §103(a) over the Wilson Ultra Tour Balata golf ball in view of Wu.

25. It is my opinion that claims 1-2 and 4-5 of the '293 patent, claims 1-11 of the '156 patent, claims 1-2 and 4-5 of the 130 patent, and claims 1 and 3 of the '873 patent would have been obvious under 35 U.S.C. §103(a) over the Wilson Ultra Tour Balata golf ball in view of Molitor '751.

26. It is my opinion that claims 1-2 and 4-5 of the '293 patent, claims 1-11 of the '156 patent, claims 1-2 and 4-5 of the 130 patent, and claims 1 and 3 of the '873 patent would have been obvious under 35 U.S.C. §103(a) over the Wilson Ultra Tour Balata golf ball in view of the Titleist Professional golf ball.

27. It is my opinion that claims 1-2 and 4-5 of the '293 patent, claims 1-11 of the '156 patent, claims 1-2 and 4-5 of the 130 patent, and claims 1 and 3 of the '873 patent would have been obvious under 35 U.S.C. §103(a) over the Wilson Ultra Tour Balata golf ball in view of the Titleist Professional 2P golf ball.

28. It is my opinion that claims 1-3 of the '130 patent are anticipated by the Wilson Ultra Tour Balata golf ball.

29. A limitation-by-limitation analysis of the prior art set forth above as applied to the claims of the patents-in-suit is provided below.

III. BACKGROUND

30. The following is an overview of the development of synthetic polymers as materials of construction for golf balls. This overview presents what I believe is a general understanding of the use of synthetic materials in their construction.

31. Until the 1970s golf balls were widely produced from natural rubber threads wound under tension on a solid or liquid center and covered with a natural rubber resin (balata).

32. In the late 1960s, duPont's Plastics Department introduced Surlyn ionomers to the golf ball industry for use as cover materials. These cover materials for golf balls were synthetic

materials that were noted for their high clarity, toughness, and abrasion resistance (See, e.g, U.S. Patent No. 3,264,272). Patents on the use of these materials in golf balls began to appear in the late 1960s (See, e.g, U.S. Patent No. 3,454,280). These materials produced almost indestructible golf balls and made the game of golf friendlier to the average player. As an example, the ionomer coated golf balls would not cut or lump when mis-hit. In the early 1970s, Ram Golf in Pontotoc, Mississippi introduced a wound golf ball with the balata cover replaced by Surlyn ionomer.

33. In the late 1970s, a project was undertaken at duPont to develop still further ionomeric materials specifically designed to meet the needs of the golf industry. The major need, cited by golf industry, was a material that would have the click, feel and spin of Balata. Surlyn 1855 (later 9020) was known and had been unsuccessfully evaluated by the industry (for example, in the Nesbitt 193 patent). A project was undertaken to produce a softer, lower hardness material (See, e.g., Statz 4,844,814) that would function more like balata. The resulting family of polymers found acceptance in the golf industry as covers materials and as replacements for balata, standard ionomers, and urethane/ionomer blends (such as described in the Molitor '751 patent). Two-piece balls employing these softer ionomers as cover materials were successfully played by professional golfers.

34. While these soft, low modulus materials did function well in two-piece golf balls there was always a desire to achieve the click and feel and spin of balata, and the distance of a Surlyn covered golf-ball. One effort to achieve this goal was through the use of multi- layered balls such as Strata (described in the patents-in-suit), and using the newer, softer ionomers as the outer cover layer, rather than the older ionomers described in the Nesbitt 193 patent.

35. DuPont's efforts to develop, soft flexible ionomers that had improved resilience continued through the years (See, e.g., U.S. Patent Nos. 5,691,418 and 6,953,820). Hence there has been an evolution of synthetic resins for use as cover materials in the golf ball industry.

36. In my experience working with golf ball designers through the years, golf ball designers routinely examine and experiment with available cover materials that have their

desired mechanical properties. For instance, as described above, when Surlyns that had similar mechanical properties to balata became available, golf ball designers began using such Surlyns as a replacement for balata. Similarly, as described below, when polyurethanes emerged as a potential golf ball cover material, golf ball designers began in the ordinary course to experiment with and use those materials as alternative cover materials to Surlyns. Thus, in my opinion, golf ball designers (especially by 1995) had a tendency to define mechanical properties they desired in their cover layers, and choose cover layer materials from materials (soft versus hard ionomers, low-acid versus high acid ionomers, ionomers versus polyurethane, etc.) that provide those mechanical properties.

37. In the ongoing search for the best cover materials for golf balls, urethanes have often been evaluated. Polyurethanes have been know for decades to be one of the few materials that have the abrasion resistance, impact durability and processability that would allow them to function on golf balls. Moreover the chemistry of urethanes allows urethane producers to tailor the hardness, abrasion resistance and resilience to fit the end-use requirements.

38. It has been known since at least the 1960s to use polyurethane as a golf ball cover material. Several papers and patents dating back several decades discuss the use of polyurethanes as golf ball cover materials, including for example, U.S. Patent No. 3,989,568 (1976 to Isaac); U.S. Patent No. 4,123,061 (1978 to Dusbiber); U.S. Patent No. 4,442,282 (1984 to Kolycheck); and the Molitor '637, Molitor '751, and Wu patents. The inventor of the patents-in-suit, Mr. Sullivan, stated in an article that "polyurethanes have been used in golf ball covers for decades...." M. Sullivan, "History and Construction of Non-Wound Golf Balls," Science and Golf III; Proceedings of the 1998 World Scientific Congress of Golf at 409, 413 (1999).

39. In addition, it was known that such polyurethane covers could be used with all kinds of golf ball cores. For instance, the '568 patent to Isaac states that the polyurethane cover could be used on "any core which is suitable for use in a golf ball." Col. 3:55-57. The '282 patent to Kolycheck states that polyurethane covers can be used with wound or solid golf balls.

Col. 4:34-42. The Wu patent also states that its polyurethane cover can be used on "either wound or solid" cores." Wu, col. 5:22-25.

40. Polyurethane covers had also been used on commercial golf balls dating back to at least the Spalding Executive, which was sold in the late 1960s. Nesbitt Tr. at 22:21-24. Polyurethane covers were actually extremely popular by 1995. At that time, the most popular ball on the professional PGA Tour was the Titleist Professional, which was a wound ball with a polyurethane cover. In addition, commercial golf balls existed by 1995 that were solid construction with a polyurethane cover, such as the Professional 2P and others (which are listed on the USGA conforming ball list for 1995).

IV. LEGAL STANDARDS

41. I understand that patent claims are presumed valid and that the burden of proving facts showing the patent claims to be invalid rests on the party asserting invalidity. I also understand that a patent is provided a presumption of validity in part because of the expertise of patent examiners and the presumption that they have done their jobs properly. I further understand in this case that a patent examiner on reexamination of the patent claims that I will address in my opinions has recently determined that the patent claims should be rejected as unpatentable over prior art.

A. Anticipation and Obviousness

42. I understand that a patent claim is anticipated by prior art under 35 U.S.C. § 102(b) when a single reference describes all of the claim limitations. I also understand that the determination of whether a recited claim limitation is satisfied is a two-step analysis: (1) determining the meaning and scope of the claims and (2) comparing the properly construed claims to the prior art. I also understand that the first step is commonly known as claim construction or claim interpretation.

43. In performing my analysis of the proper interpretation to be given to the claims of the patents-in-suit, I understand that I should look first to the "intrinsic evidence" for their

meaning, starting with the language of the claims themselves. As an initial matter, claim terms should be given their ordinary meaning to person of ordinary skill in the art. I may consult the patent specification, drawings and the prosecution history to determine the context for the claim language and to determine if the patentee deviated from the plain and ordinary meaning of the claim terms. In addition, I am informed that if a claim term has clear and plain meaning on its face, I am not to infer any special meaning for that claim absent a clear and unambiguous special meaning contained in the patent.

44. I understand that when a prior art reference makes specific reference to an aspect of a second prior art reference, the second reference is to be treated as part of the first reference. I understand that if one prior art reference incorporates by reference a second prior art in such a way, the incorporated material is to be considered part of the first prior art reference for purposes of an anticipation analysis.

45. I understand that, if the claimed invention is not anticipated by the prior art, the claim may still be invalid under 35 U.S.C. § 103(a) because the difference between the claimed subject matter and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art. I understand that the most relevant facts bearing on whether a patented invention is obvious are: (1) the scope and content of the prior art; (2) the differences between the prior art and the claim; and (3) the level of ordinary skill in the art. I also understand that, if the obviousness determination is not apparent from these factors, "secondary considerations" might also be utilized in an analysis of the obviousness of the invention.

46. In determining whether claims would have been obvious to a person of ordinary skill in the art, and are therefore invalid, I understand that I should not apply any rigid test or formula. Rather, I should use the common sense of an ordinary artisan at the time to determine whether the claimed invention is truly innovative, or merely a combination of known elements to achieve predictable results. In general, the combination of familiar elements according to known methods is likely to be obvious when it does no more than yield predictable results.

When a work is available in one field, design goals and other market forces can prompt variations of it, either in the same field or in another. If a person of ordinary skill in the art can implement a predictable variation of a known work, and would see the benefit of doing so, then a patent on that idea is likely to be obvious. Moreover, if a technique has been used to improve one device, and a person of ordinary skill in the art would recognize that it would improve similar devices in the same way, using the technique is obvious unless its actual application is beyond that person's skill.

47. I understand that the secondary factors that may bear on the question of obviousness or non-obviousness include the commercial success of the invention, a long felt but unsolved need for the invention, the failure of others to invent the subject matter claimed, an unexpected improved result due to the invention, and commercial acquiescence to the validity of the patent. My understanding, however, is that such secondary considerations are used to resolve doubt as to a patentable invention, not to inject or create such doubt. I also understand that in order for such objective evidence of non-obviousness to be relevant to a determination of obviousness or non-obviousness, the patentee must show that there is a "nexus" or close connection between the evidence and the claimed invention. Alternatively stated, the objective evidence of non-obviousness must be commensurate in scope with the claims which the evidence is offered to support. For example, if a patentee argues that a product's commercial success shows the non-obviousness of a patent, the patentee must show a nexus between the product's success and the claims of the patent at issue.

48. I have been informed that I should assume that the effective filing date of the '293 patent, '156 patent, and '873 patent in this case is November 9, 1995, and that the effective filing data of the'130 patent was made is October 13, 1995. I have been informed that I should assume those dates to be the times the inventions were made.

49. In my opinion, in 1995, a person of ordinary skill in the art of the invention of the patents-in-suit had a number of years of experience in golf ball design and/or golf ball cover design. A person of ordinary skill in the art would have a general understanding of the types of

golf ball materials and constructions that had been used in the golf ball industry up to that point in time. A person of ordinary skill in the art would be aware of prior art golf ball construction patents. This is based on my review of the patents-in-suit and my knowledge of those who were working in the field at the time.

V. SUMMARY OF PRIMARY PRIOR ART

50. The following patents are the primary prior art patent references that I used in my analysis of the validity of the claims of the patents-in-suit:

a. Nesbitt

b. Proudfit

c. Molitor '637

d. Wu

e. Molitor '751

51. At trial, I anticipate that I will explain to the jury what is described in each of these patents, including a description of the figures, tables, written description, and claims of these patents.

52. In addition, I relied on the following golf balls that were available in the market by 1994:

a. Wilson Ultra Tour Balata 100

b. Titleist Professional

c. Titleist Professional 2P

53. At trial, I anticipate that I will explain to the jury the physical properties of these golf balls, including the dimensions and materials of the various components of these golf balls.

VI. CONSTRUCTION OF DISPUTED CLAIM TERMS

54. I understand that the determination of validity or invalidity of patent claims starts with interpreting the claims of the patents. I understand that the Court will ultimately decide as a matter of law how the claims should be interpreted. Thus, if the Court construes any claim terms

differently than how I have interpreted them for purposes of this analysis, I may need to supplement my opinions expressed herein.

55. I understand that the parties dispute how the "Shore D" limitations of the patents-in-suit should be interpreted. For example, claim 1 of the '293 patent recites, "an inner cover layer having a Shore D hardness of 60 or more," and "an outer cover layer having a Shore D hardness of 64 or less." '293 patent, col. 23:51-58. Each claim of the patents-in-suit has similar limitations.

56. I understand that Callaway contends that the Shore D limitations of cover layers refers to a measurement taken on the curved surface of the cover layer (i.e., "on the ball"), whereas Acushnet contends that the Shore D limitations of cover layers refer to measurements taken on a plaque of material that conforms to the ASTM D-2240 standard (i.e., "off the ball").

57. In my opinion the "Shore D" limitations as they are used in the patents-in-suit refer to a Shore D measurement of a plaque of material that conforms to the ASTM D-2240 standard.

58. The language of the claims supports my opinion. In particular, when the patents-in-suit refer to material properties of the "inner cover layer" or "outer cover layer," they are clearly referring to properties of the materials that make up the cover layer. For example, claim 7 of the '293 patent recites "an outer cover layer having a modulus in a range of about 1,000 to about 30,000 psi." '293 patent, col. 24:60-62. Other claims of the patents-in-suit have similar claim limitations. There is no way to measure flexural modulus of a material as it sits on the surface of the ball. The only way to measure flexural modulus of a material is on a material plaque (or a "flex bar"). *See* ASTM D-790. Thus, when the claims refer to a cover layer "having a modulus," they are either referring to a measurement of a plaque of material, or they make no sense and are indefinite. Thus, when the claims refer to a material property of a "cover material," they refer to the material property as measured off the ball.

59. Other patents in the same family as the patents-in-suit also demonstrate that when Mr. Sullivan or Spalding wanted to claim the Shore D hardness as measured on the ball, it

explicitly so stated in the claims and description. For example, U.S. Patent No. 6,213,894 ("the '894 patent") is in the same family as the patents-in-suit, and lists Mr. Sullivan as the inventor. Claim 1 of the '894 patent recites "a thermoplastic inner cover layer formed over the core, the inner cover layer having a Shore D hardness of at least 60 ***as measured on the curved surface thereof. . . .***" The specification of the '894 patent uses similar language. For example, the specification states, "The invention in a preferred form is a golf ball, comprising: a core, a thermoplastic inner cover layer formed over the core, the inner cover layer having a Shore D hardness of at least 60 ***as measured on the surface thereof***, and an outer cover layer formed over the inner cover layer, the outer cover layer having a Shore D hardness of no more than 53 ***as measured on the surface thereof*** . . . ." '894 patent, col. 3:45-48. In contrast, nothing in the claims or specification of the patents-in-suit explicitly calls for a Shore D measurement taken on the ball.

60. The specification of the patents-in-suit also supports my opinion regarding the proper construction of the "Shore D" limitations. When the specification refers to Shore D hardness measurements, it repeatedly refers to measurements taken in accordance with the ASTM D-2240 standard. *See, e.g.,* '293 patent, col. 16:49-50 ("Shore hardness was measured in accordance with ASTM test 2240."). ASTM D-2240 requires measuring the Shore D hardness of a material using a plaque of material at least 0.25 inches thick. ASTM D-2240 § 6.1, at 389. The ASTM D-2240 standard does not contemplate the use of a Shore durometer on thin golf ball covers as they are formed on the curved surface of the ball.

61. I understand that Callaway identifies Sample Nos. 9 and 10 of Table 7 of the patents-in-suit as instances in which the patents-in-suit refer to the Shore D hardness as measured on the ball. I disagree that one of ordinary skill in the art would understand these to be examples of using measurements of Shore D taken on the ball. Sample Nos. 9 and 10 use an outer cover material that is a blend of Iotek 959 and 960. *See, e.g.,* '293 patent, Table 7, cols. 19-20. Iotek 959 and 960 are described in the patents-in-suit as having Shore D hardness properties of 66 and 57 respectively. '293 patent, col. 21:13. These Shore D measurements are clearly plaque

measurements, taken "off the ball," and they appear to have been taken from a datasheet listing the properties of those Iotek ionomers. Sample Nos. 9 and 10 in Table 7 list the Shore D hardness of the 959/960 outer cover as 73, but there is nothing that explicitly tells the reader whether that hardness measurement was measured on the ball or off the ball.

62. I would expect that the "off the ball" Shore D measurement of the Iotek 959/960 blend would be between the "off the ball" Shore D measurements of the individual ionomers (i.e., between 57 and 66). Thus, it would not seem internally consistent if the Shore D measurements for the individual ionomers (57 and 66) and the Shore D measurements for the blend (73) were both accurate and taken off the ball. Thus, in my opinion, either there is an error in measurements or reporting the measurements, or the "Shore D" measurement in Table 7 refers to something other than an "off the ball" measurement.

63. Callaway assumes that the reason Samples 9 and 10 of Table 7 report a Shore D that is not between 57 and 66 is because the measurement is taken on the ball in Table 7. I disagree with that assumption. The Shore D measurements of the outer cover layers in Table 7 do not vary depending on the materials underneath the outer cover layer. For instance, the Shore D measurements reported in Table 7 for Sample Nos. 9 and 10 are both 73, despite the fact that Sample 9 had no inner cover layer, and Sample 10 had an inner cover layer also composed of Iotek 959/960. Similarly, the Shore D measurements reported in Table 7 for Sample Nos. 11, 12, and 13 are all 63, despite the fact that Sample 11 has no inner cover layer at all and Sample Nos. 12 and 13 have different inner cover layers. The same can be said of samples 15, 16, and 17. If these Shore D measurements were really taken on the ball, as Callaway contends, I would expect the Shore D measurements of the outer cover layer to vary somewhat depending on the material underneath the cover layer.

64. Thus, it is not clear what the Shore D measurements in Table 7 refer to, but the measurements in the table seem inconsistent with the conclusion that they are "on the ball measurements." Thus, it is my opinion that a person of ordinary skill in the art would not understand the Shore D measurements to be "on the ball" measurements.

VII. INVALIDITY ANALYSIS

A. Claim 1 of the '293 patent

65. Claim 1 of the '293 patent recites:

> 1. A golf ball comprising:
>
> (a) a core;
>
> (b) an inner cover layer having a Shore D hardness of 60 or more molded on said core, said inner cover layer having a thickness of 0.100 to 0.010 inches, said inner cover layer comprising a blend of two or more low acid ionomer resins containing no more than 16% by weight of an alpha, beta-unsaturated carboxylic acid; and
>
> (c) an outer cover layer having a Shore D hardness of 64 or less molded on said inner cover layer, said outer cover layer having a thickness of 0.010 to 0.070 inches, and said outer cover layer comprising a relatively soft polyurethane material.

1. Claim 1 of the '293 patent is anticipated by Nesbitt

66. Nesbitt discloses a golf ball that has a solid core, a hard, high modulus inner cover layer, and a soft, low modulus outer cover layer. Specifically, Nesbitt discloses a solid core formed of "resilient polymeric material or rubber-like material in the shape of a sphere." Nesbitt, col. 2:31-34; Figs. 1-2. Nesbitt does not disclose the composition of his core, but suggests an example in which the core has a .770 coefficient of restitution. Nesbitt, col. 3:26-30.

67. One example described in Nesbitt has an inner cover layer of Surlyn 1605 and an outer cover layer of Surlyn 1855. Surlyn 1605 has been redesignated as Surlyn 8940, and Surlyn 1855 has been redesignated as Surlyn 9020. Surlyn 1605 (8940) has an inherent Shore D

hardness (measured off the ball) of 65 or 66, and Surlyn 1855 (9020) has an inherent Shore D hardness (measured off the ball) of 55. *See* Surlyn Product Information Sheet.

68. Nesbitt describes that the inner cover layer has a thickness of between 0.020 inches and 0.070 inches. Nesbitt, col. 3:19-22; Fig. 2. Nesbitt describes that the outer cover layer has a thickness of between 0.020 and 0.100 inches. Nesbitt, col. 3:22-25. Nesbitt describes an example in which the combination of the core and the inner cover layer (sometimes called the mantle or intermediate ball) has a diameter of 1.565 inches. Nesbitt, col. 3:26-30.

69. While Nesbitt describes the use of Surlyns 1605 and 1855 as the inner and outer cover layers of his ball, Nesbitt makes clear that the use of Surlyn ionomer resins generally, and the use of Surlyns 1605 and 1855 specifically, are merely examples of his invention and are not limiting. Nesbitt, col. 2:33-49; col. 3:19-25 (describing the use of materials "such as" the two Surlyns).

70. Nesbitt explicitly directs the reader to substitute materials described in the Molitor '637 patent for the cover materials described in the Nesbitt patent. In particular, Nesbitt states:

> The inner, intermediate, or first layer or ply 14 and the outer cover, second layer or ply 16 or either of the layers may be cellular when formed of a foamed natural or synthetic polymeric material. Polymeric materials are preferably such as ionomer resins which are foamable. Reference is made to the application Ser. No. 155,658, of Robert P. Molitor issued into U.S. Pat. No. 4,274,637 which describes a number of foamable compositions of a character which may be employed for one or both layers 14 and 16 for the golf ball of this invention.

Nesbitt, col. 3:51-61. One of ordinary skill in the art would understand this paragraph to direct the reader to look to the Molitor '637 patent for "foamable compositions" that may be employed as one or both cover layer materials in the golf ball construction described by Nesbitt.

71. The Molitor '637 patent was issued on June 23, 1981, and describes a number of golf ball cover layer materials. In particular, Molitor '637 teaches the use of polymeric materials to be used for cover layers of golf balls, including, among others, blends of ionomers and polyurethane.

72. In particular, Examples 16 through 19 of Molitor '637 describes the use of polyurethane as a cover material. Molitor '637, col. 18:31-19:10. Examples 16-17 describe a cover material formed of "Thermoplastic Polyurethane," which was sold as Estane 58133. Molitor '637, col. 18:31-59. Examples 18-19 describe "casting a liquid thermoset polyurethane foam," which was sold as Reyn-o-SOL RU 6709, as a cover material. Molitor '637, col. 18:60-19:10.

73. The thermoplastic and thermoset polyurethanes taught by Molitor '637 are "foamable compositions" that may be used as the outer cover layer of the golf ball described in Nesbitt. In particular, polyurethane is a "foamable" material (i.e., it can be foamed, using a blowing agent or something similar). Indeed, Molitor '637 itself describes the use of a "liquid thermoset polyurethane ***foam***." Molitor '637, col. 18:63-66 (emphasis added). Accordingly, Nesbitt's incorporation by reference of the "foamable compositions" of Molitor '637 would have directed a person of ordinary skill in the art to use the polyurethanes of Molitor '637 as the outer cover material of the golf ball construction described by Nesbitt. Indeed, as set forth in the background section of this report, it was extremely well known in 1995 to use polyurethanes as the outer cover material for golf balls.

74. Molitor '637 also discloses a blend of ionomers as cover layer material. In particular, Examples 1-7 of Molitor '637 use a blend that includes Surlyn 1605 (now 8940) and Surlyn 1557 (now 9650), and other additives. Molitor '637, col. 1:54-16:34. Surlyn 1557 has been redesignated as Surlyn 9650, which has a Shore D hardness of 63, measured off the ball. Both Surlyn 1605 (8940) and 1557 (9650) are ionomers with a low (<16%) acid content. The ionomer blend cover material described by Molitor '637 is also a "foamable composition" that may be used as the inner cover layer of the golf ball construction disclosed by Nesbitt. Since the inner cover layer described in Nesbitt and the blended ionomer material disclosed in Molitor '637 have similar mechanical properties, a person of ordinary skill in the art would have readily understood to use the blended ionomer material of Molitor 6317 as the inner cover layer. Accordingly, Nesbitt's incorporation by reference of the "foamable compositions" of Molitor

'637 would have directed a person of ordinary skill in the art to use the blend of ionomers described in Examples 1-7 of Molitor '637 as the inner cover layer of the golf ball described by Nesbitt.

75. I understand from Callaway's Response to the Office Action in the reexamination proceedings that Callaway argues that Molitor's cover materials could only be used with a cover layer thickness of 0.060 inches of greater, and that therefore the cover materials disclosed in Molitor '637 could not be used in the golf ball construction of Nesbitt to anticipate claim 1 of the '293 patent. *See, e.g.,* Response to Office Action in the Reexamination of the '293 Patent, April 30, 2007, at 17. Callaway refers to Molitor '637 at col. 5:1-13. I disagree with Callaway's argument. First, Molitor '637 states that in Mr. Molitor's testing, "functional foaming cannot be achieved, ***when the cover is injection molded onto the center***, if the cover thickness decreases below 0.060"." Molitor '637, col. 5:5-7 (emphasis added). This statement does not speak to the ability to compression mold a foamed cover layer at a thickness below 0.060 inches. It was well known in the art in 1995 that cover layers of golf balls could be compression molded at much thinner than 0.060 inches. Second, even if a an outer cover was made on Nesbitt's construction using cover layer thicknesses of 0.060 inches for the inner and/or outer cover layers, that thickness would fall within the range claimed in claim 1 of the '293 patent (0.020 to 0.070 inches for the outer cover layer and 0.010 to 0.100 inches for the inner cover layer).

76. Accordingly, a person of ordinary skill in the art would understand that the disclosure of Nesbitt, incorporating by reference the foamable compositions of Molitor '637, discloses a golf ball with a solid core, a hard inner cover layer (which may be a single ionomer or a blend of ionomers), and a soft polyurethane outer cover.

77. The chart below sets forth the specific disclosures in Nesbitt, incorporating by reference Molitor '637, that are set forth in claim 1 of the '293 patent.

Claim 1 of '293 patent	**Nesbitt (incorporating by reference Molitor '637)**

Claim 1 of '293 patent	**Nesbitt (incorporating by reference Molitor '637)**
1. A golf ball comprising:	"The disclosure embraces a golf ball and method of making same…." Nesbitt, Abstract, Figs. 1, 2.
a core;	"Referring to the drawings in detail there is illustrated a golf ball 10 which comprises a solid center or core 12 formed as a solid body of resilient polymeric material or rubber-like material in the shape of a sphere." Nesbitt, col. 2:31-34; *see also* col. 3:26-30; Figs. 1, 2.
an inner cover layer having	Nesbitt describes a ball construction with an inner cover layer. "Disposed on the spherical center or core 12 is a first layer, lamination, ply or inner cover 14 of molded hard, highly flexural modulus resinous material…." Nesbitt, col. 2:34-37.
a Shore D hardness of 60 or more molded on said core,	Nesbitt describes the use of Surlyn 1605 as the inner cover layer: "inner cover 14 of molded hard, high flexural modulus resinous material such as type 1605 Surlyn® marketed by E.I. duPont de Nemours." Nesbitt, col. 2:36-38. Surlyn 1605 has been redesignated as 8940. *See* Surlyn Product Information; '293 patent, col. 2:54-55. Surlyn 1605 (8940) has a Shore D harness of 65 as measured off the ball. *See* Surlyn Product Information. Nesbitt incorporates by reference the materials of Molitor '637 for use in the inner cover layer. Nesbitt, col. 3:51-60. Molitor '637 teaches in Examples 1-7 the use of cover materials including a blend of Surlyn 1605 (8940) and Surlyn 1557 (9650). Molitor '637, col. 14:54-16:34. Surlyn 1605 (8940) has a Shore D hardness of 65 as measured off the ball. *See* Surlyn Product Information. Surlyn 1557 (9650) has a Shore D hardness of 63 as measured off the ball. *See id.* The blend of these two ionomers described in Molitor '637 would inherently have a Shore D hardness around between 63 and 65, as measured off the ball.
said inner cover layer having a thickness of 0.100 to 0.010 inches,	"It is found that the inner layer of hard, high flexural modulus resinous material such as Surlyn® resin type 1605, is preferably of a thickness in a range of 0.020 inches and 0.070 inches." Nesbitt, col. 3:19-23. A person of ordinary skill in the art would recognize that the ionomer blend disclosed in Molitor '637 could easily be compression or injection molded to any thickness within the range described by Nesbitt.

Claim 1 of '293 patent	**Nesbitt (incorporating by reference Molitor '637)**
said inner cover layer comprising a blend of two or more low acid ionomer resins containing no more than 16% by weight of an alpha, beta-unsaturated carboxylic acid; and	The ionomer blend described by Molitor '637 comprises two low acid (<16% acid). Both Surlyn 1605 (8940) and 1557 (9650) contain no more than 16% by weight of an alpha, beta-unsaturated carboxylic acid. Since the inner cover layer described in Nesbitt and the blended ionomer material disclosed in Molitor '637 have similar mechanical properties, a person of ordinary skill in the art would have readily understood to use the blended ionomer material of Molitor 6317 as the inner cover layer.
an outer cover layer having a Shore D hardness of 64 or less molded on said inner cover layer,	"An outer layer, ply, lamination or cover 16 … is then remolded onto the inner play or layer 14…." Nesbitt, col. 2:43-47. The outer cover disclosed in Nesbitt is Surlyn 1855 (now 9020), and has a Shore D hardness of 55, as measured off the ball. *See* Surlyn Product Information. Nesbitt incorporates by reference the polyurethane cover materials disclosed by Molitor '637 for use as the outer cover layer in the Nesbitt golf ball construction. Nesbitt, col. 3:51-60. Molitor '637 teaches the use of Estane 58133 in examples 16 and 17. Molitor '637, col. 18:31-59. Estane is a soft polyurethane material that has a Shore D hardness of 55, as measured off the ball. *See* Estane 58133 Product Specification Sheet.
said outer cover layer having a thickness of 0.010 to 0.070 inches, and	"The thickness of the outer layer or cover 16 of soft, low flexural modulus resin such as Surlyn type 1855, may be in the range of 0.020 inches and 0.100 inches." Nesbitt, col. 3:22-25. "The outer layer of the soft resin is of a thickness of 0.0575 inches." Nesbitt, col. 2:50-52. A person of ordinary skill in the art would recognize that the polyurethane cover materials disclosed in Molitor '637 could easily be molded or cast to any thickness within the range described by Nesbitt.
said outer cover layer comprising a relatively soft polyurethane material.	Nesbitt incorporates by reference the polyurethane cover materials disclosed by Molitor '637 for use as the outer cover layer in the Nesbitt golf ball construction. Nesbitt, col. 3:51-60. Estane 58133 is a relatively soft polyurethane material whose Shore D hardness is 55, as measured off the ball. *See* Estane 58133 Product Specification Sheet.

78. While it is my opinion that the Shore D hardness claim limitations refer to measurements taken off the ball, Nesbitt would still anticipate claim 1 of the '293 patent even if

the Shore D hardness claim limitations referred to "on the ball" measurements. Balls were made at the direction of Dr. William MacKnight that had the core described by Sullivan as the Nesbitt core, an inner cover layer made of the blend of ionomers described by Molitor '637, and an outer cover layer made of the Estane 58133 polyurethane material described by Molitor '637. The average Shore D hardness of the outer layer of these balls, as measured on the ball, was 61.0, which is less than 64. MacKnight Decl. ¶ 33. In addition, the "on the ball" measurement of Shore D hardness of the inner cover layer would be even higher than the "off the ball" measurement. This is confirmed by Mr. Nesbitt himself during his deposition, who testified that when he measured the hardness of the inner cover layer material on the ball it was higher than when measured off the ball. Nesbitt Tr. at 244:6—244:17. Thus, even under a claim construction that requires the Shore D measurements to be taken on the ball, claim 1 is anticipated by Nesbitt, incorporating by reference Molitor '637.

2. Claim 1 of the '293 patent is obvious over Nesbitt in view of Molitor '637

79. Even if Nesbitt's reference to Molitor '637 is not seen legally as an "incorporation by reference," claim 1 of the '293 patent would have been obvious to one of ordinary skill in the art over Nesbitt in view of Molitor '637. A person of ordinary skill in the art would have been motivated to combine the Molitor '637 patent with the golf ball disclosed in Nesbitt. First, Nesbitt explicitly directs the reader to the cover materials in Molitor '637. Second, it was very well known in 1995 to use polyurethane as a golf ball cover, on both wound balls and solid 2-piece balls. For example, the most popular golf ball on the PGA Tour in 1995 was the Titleist Professional, which used polyurethane as a cover material.

80. Moreover, since the polyurethane cover material disclosed by Molitor '637 had very similar mechanical properties to the ionomer outer cover material disclosed in Nesbitt, a person of ordinary skill in the art would have been motivated to substitute the polyurethane of Molitor '637 for the ionomer outer cover layer of Nesbitt. In particular, both Surlyn 1855 (9020) and Estane 58133 have a Shore D of 55, and have flexural modulus properties of 25,000 and

14,000 psi, respectively. *See* Estane 58133 Product Specification Sheet; Surlyn Product Information. As set forth in the background section of this report, it was extremely well known in 1995 to use polyurethanes as the outer cover material for golf balls. In addition, golf ball designers had a tendency to substitute cover layer materials that had similar mechanical properties. Thus, the combination of the polyurethane cover disclosed in Molitor '637 with the Nesbitt construction would constitute simply combining known elements (the construction of Nesbitt and the cover material of Molitor '637) in a predictable way for predictable results.

81. The combination of the golf ball construction described by Nesbitt and the cover materials of Molitor '637 would render claim 1 of the '293 patent obvious for the same reasons that Nesbitt anticipates claim 1 of the '293 patent, which are set forth above.

3. Claim 1 of the '293 patent is obvious over Nesbitt in view of Wu

82. Wu teaches:

> The problem with SURLYN®-covered golf balls, however, is that they lack the "click" and "feel" which golfers had become accustomed to with balata. "Click" is the sound when the ball is hit by a golf club and "feel" is the overall sensation imparted to the golfer when the ball is hit.
>
> It has been proposed to employ polyurethane as a cover stock for golf balls because, like SURLYN®, it has a relatively low price compared to balata and provides superior cut resistance over balata. However, unlike SURLYN®-covered golf balls, polyurethane-covered golf balls can be made to have the "click" and "feel" of balata.

Wu, col. 1:36-46.

83. Wu specifically teaches a polyurethane material that can be used as a cover material to replace Surlyn or balata covers. Example 1 of Wu sets forth an example of such a polyurethane material. Wu col. 7:10-28. I understand that this polyurethane was used on the Titleist Professional golf ball, which was the most popular golf ball on the PGA Tour in 1995. Dalton PTO Declaration ¶¶ 3-4.

84. The polyurethane disclosed as Example 1 by Wu has a flexural modulus of about 23,000 psi. Dalton PTO Decl. ¶ 7. In addition Dr. MacKnight created balls that had the core of Nesbitt, inner cover material of the ionomer blend disclosed in Molitor '637 and incorporated by reference by Nesbitt, and an outer cover layer of the Wu Example 1 material. The average Shore D hardness of the outer cover of those balls was 55.6 as measured on the ball, which is less than 64 as required by the claims. MacKnight Decl. ¶ 33. The Shore D hardness of the polyurethane of Example 1 of Wu would be even lower as measured off the ball. Thus, the polyurethane disclosed in Wu would satisfy the claimed limitations.

85. I understand that the Board of Patent Appeals and Interferences has already determined in relation to the examination of another Sullivan patent that it would be obvious to use the polyurethane cover taught by Wu on the golf ball construction disclosed by Nesbitt. In particular, the BPAI's decision in *Ex parte Sullivan*, related to U.S. Application No. 09/873,594, states:

> In applying the test for obviousness we conclude that the teachings of Wu clearly would have made it obvious at the time the invention was made to a person of ordinary skill in the art to have modified Nesbitt's golf ball by using polyurethane as the outer cover material to achieve the expected benefits therefrom taught by Wu (i.e., to have the "click" and "feel" of balata; improved shear resistance and cut resistance; durability; and resiliency). Thus, it would have been obvious to one skilled in the art too have modified Nesbitt's three-piece golf ball having a spherical core, an inner layer of type 1605 Surlyn® and an outer layer of type 1855 Surlyn® by replacing the type 1855 Surlyn® in the outer layer with polyurethane as suggested and taught by Wu.

Ex Parte Sullivan, 2004-0242, at 11 (footnote omitted).

86. The reasoning of the BPAI in *Ex parte Sullivan* applies equally well to the patents-in-suit. There are very few limitations that are claimed in the patents-in-suit that were not present in the claim rejected by the BPAI. These limitations include: a) Shore D hardness of the inner cover layer that is greater than 60; b) Shore D hardness of the outer cover layer that is less than 64; c) flexural modulus of the inner cover layer that is between about 15,000 psi and about 70,000 psi; d) flexural modulus of the outer cover layer that is between about 1,000 psi and

30,000 psi; e) a dimpled outer cover; and f) and an overall diameter of 1.680 inches or more. All of these limitations are inherently disclosed by Nesbitt and Wu. Specifically, the inner cover layer of Nesbitt is described as Surlyn 1605 (8940), whose Shore D is 65, as measured off the ball, and would be even higher measured on the ball, and whose flexural modulus is 51,000 psi. *See* Surlyn Product Information. The outer cover of Nesbitt is described as Surlyn 1855 (now 9020), whose Shore D is 55, as measured off the ball, and whose flexural modulus is about 14,000. *See id.* The flexural modulus of the Wu Example 1 polyurethane is about 23,000 psi. Dalton PTO Decl. ¶ 7. Nesbitt also describes a dimpled outer cover. Nesbitt, col. 2:43-50. . Furthermore, Nesbitt states that the minimum diameter for a golf ball set by the USGA is 1.680 inches. *See* Nesbit, col. 2:50-53. Thus, the BPAI's reasoning in deciding that Nesbitt can be combined with Wu applies equally to the patents-in-suit.

87. I understand that Callaway may argue that the claims of the patents-in-suit are not obvious over Nesbitt in view of Wu because these references do not teach a person of ordinary skill in the art how to adhere a polyurethane outer cover layer to an ionomer inner cover layer. I note that there is nothing in the claims of the patents-in-suit that require good adhesion between the cover layers. There is nothing in the specification of the patents-in-suit that teaches someone how to adhere the outer cover layer to the inner cover layer. Thus, the fact that these prior art references do not teach how to achieve such adhesion does not affect my analysis of the validity of the claims over the prior art.

88. For the reasons set forth above, the combination of the polyurethane cover disclosed in Wu with the Nesbitt construction would constitute simply combining known elements (the construction of Nesbitt and the cover material of Wu) in a predictable way for predictable results. Thus, it is my opinion that claim 1 of the '293 patent would be obvious over Nesbitt in view of Wu.

4. Claim 1 of the '293 patent is obvious over Nesbitt in view of Molitor '751

89. Molitor '751 teaches cover materials for use as outer cover layers of golf balls, including "two-piece golf balls." Specifically, Molitor '751 states:

> It has now been discovered that a key to manufacturing a two-piece ball having playability properties similar to wound, balata-covered balls is to provide about an inner resilient molded core a cover having a shore C hardness less than 85, preferably 70-80, and most preferably 72-76. The novel cover of the golf ball of the invention is made of a composition comprising a blend of (1) a thermoplastic urethane having a shore A hardness less than 95 and (2) an ionomer having a shore D hardness greater than 55.

Molitor '751, col. 2:33-49.

90. Molitor explicitly states that the covers disclosed in Molitor '751 can be used on the Nesbitt ball construction. Specifically, Molitor '751 states:

> The phrase "two piece ball" as used herein refers primarily to balls consisting of a molded core and a cover, but also includes balls having a solid layer beneath the cover as disclosed, for example, in U.S. Pat. No. 4,431,193 to Nesbitt, and other balls having non-wound cores.

Molitor '751, col. 2:7-12. Molitor '751 states that using a soft polyurethane on balls such as the Nesbitt ball construction have "playability properties as good or better than balata-covered wound balls," and "have better wood playability properties than conventional two-piece balls, and permit experienced golfers to apply spin so as to fade or draw a shot." Molitor '751, col. 2:61-68.

91. Given the description of the advantages of the cover materials in Molitor '751, and its suggestion to use the cover materials on the Nesbitt ball, a person of ordinary skill in the art would have been motivated to substitute the cover materials disclosed in Molitor '751 for the outer cover material disclosed in Nesbitt.

92. While Molitor '751 expresses the preferred hardness of the disclosed cover layer in terms of a Shore C measurement, this can be roughly correlated to a Shore D measurement. Molitor '751 discloses a most preferred cover hardness of 72 to 76 on the Shore C scale. A

cover with a Shore C hardness of 72 to 76 will certainly have a Shore D hardness of well below 64. Several sources confirm this.

a. The patents-in-suit explicitly refer to a translation between Shore C and Shore D. For example, the '293 patent states "Preferably, the inner layer or ply incudes [sic] a blend of low acid ionomers and has a Shore D hardness of 60 or greater and the outer cover layer comprised of polyurethane and has a **Shore D hardness of about 45 (i.e., Shore C hardness of about 65)**." '293 patent, col. 3:49-54 (emphasis added).

b. For example, U.S. Patent. No. 6,905,648, assigned to Callaway, shows that a Shore C hardness of 73 correlates to a Shore D hardness of 47. U.S. Patent No. 6,905,648, Table 19.

c. Spalding's arguments to the patent office during the prosecution of the '873 patent also confirm this correlation. During the prosecution of the '873 patent, Spalding used a comparison chart from Rex Gauge Company to convert between Shore C and Shore D measurements to overcome a rejection. U.S. Application Serial No. 09/776,278, Response to Office Action, March 14, 2002. That same comparison chart shows that a Shore C hardness between 72 and 76 would translate to a Shore D hardness of less than 60, which would certainly be less than 64.

d. DuPont also provides a chart for the purpose of translating Shore hardness measurements. This chart shows that Shore C measurements of 77 or less translate to a Shore D of 58 or less, which is well under 64. This duPont chart was Exhibit O to Acushnet's Comments to Callaway's Response to Office Action in the pending reexaminations of the patents-in-suit.

e. In another patent application, Callaway submitted a declaration of Mark Binette in which Mr. Binette set forth both Shore C and Shore D hardness values. Application Serial No. 08/631,613, Binette Declaration, at 4. Those

values indicated a correlation between Shore C of 75 and Shore D of 49, and between Shore C of 72 and Shore D of 48. Thus, a Shore C measurement between 72 and 76 would be well under 64 on the Shore D scale.

Thus, it is clear that the preferred hardness range that Molitor '751 describes for the outer cover layer falls well under 64 on the Shore D scale.

93. In addition, Dr. MacKnight prepared ball samples having Nesbitt's core, an inner cover layer using the ionomer blend disclosed by Molitor '637 and incorporated by reference into Nesbitt, and an outer cover layer using a polyurethane / ionomer blend similar to the most preferred Example 4 in the Table on Columns 7 and 8 of Molitor '751. The cover material was identical to Example 4, except a slightly harder ionomer than that disclosed in Example 4 was used. Even with the harder ionomer being used, the average outer cover hardness of the sample balls was 49.6 on the Shore D scale. MacKnight Decl. ¶ 33. This measurement is entirely consistent with the rough correlations performed above, and is well under 64, as required by the claims of the patents-in-suit.

94. For the reasons set forth above, the combination of the polyurethane cover disclosed in Molitor '751 with the Nesbitt construction would constitute simply combining known elements (the construction of Nesbitt and the cover material of Molitor '751) in a predictable way for predictable results. Thus, it is my opinion that claim 1 of the '293 patent would be obvious over Nesbitt in view of Molitor '751.

5. Claim 1 of the '293 patent is obvious over Proudfit in view of Molitor '637

95. Proudfit discloses a golf ball with a core, a relatively hard inner cover layer, and a relatively soft outer cover layer. Proudfit, col. 7:21-25; Figs. 1-2. The inner cover layer is described as a 75/25 blend of low acid (<16%) ionomer resins, Surlyn 8940 and Surlyn 9910. Proudfit, col. 8:22-30. The outer cover layer is described as being a "soft material such as balata or a blend of balata and other elastomers." Proudfit, col. 5:15-17.

96. Proudfit describes that the core can be between about 1.000 to 1.500 inches in diameter. Proudfit, col. 7:35-37. Proudfit describes that the thickness of the inner cover layer can be from about 0.0250 to 0.2875 inches, such that the core plus the inner cover layer (sometimes referred to as the mantle or intermediate ball) has a diameter from about 1.550 to 1.590 inches. Proudfit, col. 7:37-40. Proudfit describes that the thickness of the outer cover layer can be from about 0.0450 to 0.0650 inches, and that the total ball diameter is 1.680 inches. Proudfit, col. 7:40-43.

97. Proudfit describes the preferred dimensions of the ball described as having a core diameter of 1.500 inches, an inner cover layer thickness of 0.037 inches (giving an inner layer diameter of 1.575 inches), and an outer layer thickness of 0.0525 inches. The total preferred diameter of the ball is 1.680 inches. Proudfit, col. 7:43-47.

98. In my opinion, the only element of the claims of the patents-in-suit that is not described explicitly by Proudfit is the use of polyurethane as the outer cover layer. The table below shows the specific disclosures in Proudfit that are set forth in claim 1 of the '293 patent.

Claim 1 of '293 patent	**Proudfit**
1. A golf ball comprising:	"This invention relates to golf balls, and more particularly, to a golf ball having a two-layer cover." Proudfit, col. 1:11-12; Figs. 1-2.
A core;	"FIG. 1 illustrates a two-piece golf ball 10 which includes a solid core 11 and a cover 12 which comprises a relatively hard inner layer 13 of one or more ionomer resins and a relatively soft outer layer 14 of polymeric material." Proudfit, col. 7:21-24; Figs 1-2; *see also* col. 7:51-55.
an inner cover layer having	"FIG. 1 illustrates a two-piece golf ball 10 which includes a solid core 11 and a cover 12 which comprises a relatively hard inner layer 13 of one or more ionomer resins and a relatively soft outer layer 14 of polymeric material." Proudfit, col. 7:21-24; Figs 1-2.
a Shore D hardness of 60 or more molded on said core,	"The composition of the inner cover layer is described in Table 6." Proudfit, col. 8:22-30. Table 6 sets forth a blend of ionomers that consists of 75% Surlyn 8940 and 25% Surlyn 9910. *Id.*

Claim 1 of '293 patent	**Proudfit**
	Surlyn 8940 has a Shore D hardness of 65, as measured off the ball. Surlyn 9910 has a Shore D hardness of 64, as measured off the ball. *See* Surlyn Product Information. Thus, this blend of ionomers would have a Shore D hardness of between 64 and 65, which is greater than 60. The inner cover material is molded, by one of two methods, over the core. Proudfit, col. 8:32-38.
said inner cover layer having a thickness of 0.100 to 0.010 inches,	"The thickness of the inner layer can be within the range of about 0.0250 to 0.2875 inch to provide a total diameter of the inner layer and core within the range of about 1.550 to 1.590 inch." Proudfit, col. 7:37-40. "The preferred dimensions are … inner layer thickness of 0.037 inch." Proudfit, col. 7:43-44.
said inner cover layer comprising a blend of two or more low acid ionomer resins containing no more than 16% by weight of an alpha, beta-unsaturated carboxylic acid; and	Surlyn 8940 and Surlyn 9910 are both low acid ionomers containing no more than 16% by weight of an alpha, beta-unsaturated carboxylic acid.
an outer cover layer having a Shore D hardness of 64 or less molded on said inner cover layer,	"FIG. 1 illustrates a two-piece golf ball 10 which includes a solid core 11 and a cover 12 which comprises a relatively hard inner layer 13 of one or more ionomer resins and a relatively soft outer layer 14 of polymeric material." Proudfit, col. 7:21-24; *see also* Figs 1-2. "… an outer layer of soft material such as balata or a blend of balata and other elastomers." Proudfit, col. 5:15-17. It was well known to people of ordinary skill in the art in 1995 that balata had a shore D of less than 64. In addition, Proudfit describes a thermoset elastomer based on a blend of polybutadiene and balata like balata as an example of the cover material in Table 7. Proudfit, col. 8:43-55. According to the Declaration of Ed. Hebert, submitted as part of the reexamination proceedings, this material has a Shore D hardness of less than 64. Hebert PTO Decl. ¶ 7.
said outer cover layer having a thickness of 0.010 to 0.070 inches, and	"The thickness of the outer layer can be within the range of about 0.0450 to 0.0650 inch to provide a total ball diameter of 1.680 inch. The preferred dimensions are … an outer layer thickness of 0.0525 inch…." Proudfit, col. 7:40-46.

Claim 1 of '293 patent	Proudfit
said outer cover layer comprising a relatively soft polyurethane material.	Proudfit discloses the use of a soft outer cover layer material, but not explicitly the use of polyurethane. "… an outer layer of soft material such as balata or a blend of balata and other elastomers." Proudfit, col. 5:15-17.

99. Although Proudfit does not expressly describe the use of polyurethane as an outer cover material, it would have been well known to a person of ordinary skill in the art in 1995 that polyurethane was a suitable and desirable replacement cover material for balata-based cover materials. The advantages of polyurethane over balata include: (a) improved processability; (b) improved durability compared to balata; (c) cost-effectiveness compared to balata; and (d) good click and feel.

100. In addition, Molitor '637 discloses the use of polyurethane as the outer cover layer of a golf ball. Molitor '637, col. 5:33-41; col. 18, Examples 16-19. As set forth in detail earlier in this report, Molitor '637 discloses using Estane 58133 as an example of such a polyurethane cover. Estane 58133 has a flexural modulus of about 25,000 psi. Estane 58133 Product Specification Sheet. Proudfit's outer cover material has a flexural modulus of between 20,000 to 25,000 psi. Proudfit, col. 6:28-31. Thus, a person of ordinary skill in the art would recognize that Estane 58133 would be a suitable replacement for the outer cover material disclosed in Proudfit.

101. As set forth above during the discussion of Nesbitt anticipating claim 1 of the '293 patent, the polyurethane cover described by Molitor '637 could easily be molded to the preferred outer cover layer dimensions set forth in Proudfit, for example by compression molding.

102. While it is my opinion that the "Shore D" limitations should be construed as to require the measurement of Shore D hardness off the ball, Proudfit in view of Molitor '637 would also render claim 1 of the '293 patent obvious under a claim construction that required measurement on the ball. Dr. MacKnight prepared samples of balls with the core of Proudfit, the

inner cover layer of Proudfit, and an outer cover layer using the Molitor '637 Estane 58133 polyurethane composition. The average Shore D measurement of the outer cover, measured on the ball, was 59.4, which is well under the claimed requirement of 64 Shore D. MacKnight Decl. ¶ 33.

103. For the reasons set forth above, the combination of the polyurethane cover disclosed in Molitor '637 with the Proudfit construction would constitute simply combining known elements (the construction of Proudfit and the cover material of Molitor '637) in a predictable way for predictable results. Thus, it is my opinion that claim 1 of the '293 patent is obvious over Proudfit in view of Molitor '637.

6. Claim 1 of the '293 patent is obvious over Proudfit in view of Wu

104. As discussed above, Wu teaches:

> The problem with SURLYN®-covered golf balls, however, is that they lack the "click" and "feel" which golfers had become accustomed to with balata. "Click" is the sound when the ball is hit by a golf club and "feel" is the overall sensation imparted to the golfer when the ball is hit.
>
> It has been proposed to employ polyurethane as a cover stock for golf balls because, like SURLYN®, it has a relatively low price compared to balata and provides superior cut resistance over balata. However, unlike SURLYN®-covered golf balls, polyurethane-covered golf balls can be made to have the "click" and "feel" of balata.

Wu, col. 1:36-46.

105. Wu specifically teaches a polyurethane material that can be used as a cover material to replace Surlyn or balata covers. Example 1 of Wu sets forth an example of such a polyurethane material. Wu col. 7:10-28. I understand that this polyurethane was used on the Titleist Professional golf ball, which was the most popular golf ball on the PGA Tour in 1995. Dalton PTO Declaration ¶¶ 3-4.

106. The polyurethane disclosed as Example 1 by Wu has a flexural modulus of about 23,000 psi. Dalton PTO Decl. ¶ 7. In addition Dr. MacKnight created balls that had the core of

Proudfit, inner cover material of the Proudfit, and an outer cover layer of the Wu Example 1 material. The average Shore D hardness of the outer cover of those balls was 56.8 as measured on the ball, which is less than 64 as required by the claims. MacKnight Decl. ¶ 33. The Shore D hardness of the polyurethane of Example 1 of Wu would be even lower as measured off the ball. Thus, the polyurethane disclosed in Wu would satisfy the claimed limitations.

107. Proudfit's outer cover material has a flexural modulus of between 20,000 to 25,000 psi. Proudfit, col. 6:28-31. Thus, a person of ordinary skill in the art would recognize that the Wu Example 1 polyurethane (flexural modulus of about 23,000 psi) would be a suitable replacement for the outer cover material disclosed in Proudfit.

108. For the reasons set forth above, the combination of the polyurethane cover disclosed in Wu with the Proudfit construction would constitute simply combining known elements (the construction of Proudfit and the cover material of Wu) in a predictable way for predictable results. Thus, it is my opinion that claim 1 of the '293 patent is obvious over Proudfit in view of Wu.

7. Claim 1 of the '293 patent is obvious over Proudfit in view of Molitor '751

109. Molitor '751 teaches cover materials for use as outer cover layers of golf balls, including "two-piece golf balls." Specifically, Molitor '751 states:

> It has now been discovered that a key to manufacturing a two-piece ball having playability properties similar to wound, balata-covered balls is to provide about an inner resilient molded core a cover having a shore C hardness less than 85, preferably 70-80, and most preferably 72-76. The novel cover of the golf ball of the invention is made of a composition comprising a blend of (1) a thermoplastic urethane having a shore A hardness less than 95 and (2) an ionomer having a shore D hardness greater than 55.

Molitor '751, col. 2:33-49.

110. Molitor explicitly states that the covers disclosed in Molitor '751 can be used on the a multi-layer cover, solid core construction. Specifically, Molitor '751 states:

> The phrase "two piece ball" as used herein refers primarily to balls consisting of a molded core and a cover, but also includes balls having a solid layer beneath the cover as disclosed, for example, in U.S. Pat. No. 4,431,193 to Nesbitt, and other balls having non-wound cores.

Molitor '751, col. 2:7-12. The golf ball construction described by Proudfit is such a construction. Molitor '751 states that using a soft polyurethane on such balls have "playability properties as good or better than balata-covered wound balls," and "have better wood playability properties than conventional two-piece balls, and permit experienced golfers to apply spin so as to fade or draw a shot." Molitor '751, col. 2:61-68.

111. Given the description of the advantages of the cover materials in Molitor '751, and its suggestion to use the cover materials on multi-layer cover balls like that described in Proudfit, a person of ordinary skill in the art would have been motivated to substitute the cover materials disclosed in Molitor '751 for the outer cover material disclosed in Proudfit.

112. As set forth with respect to the discussion of claim 1 of the '293 compared to Nesbitt in view of Molitor '751, the preferred hardness range that Molitor '751 describes for the outer cover layer (72 to 76 Shore C) falls well under 64 on the Shore D scale.

113. In addition, Dr. MacKnight prepared ball samples having Proudfit's core, Proudfit's inner cover layer, and an outer cover layer using a polyurethane / ionomer blend similar to the most preferred Example 4 in the Table on Columns 7 and 8 of Molitor '751. The cover material was identical to Example 4, except a slightly harder ionomer than that disclosed in Example 4 was used. Even with the harder ionomer being used, the average outer cover hardness of the sample balls was 51.2 on the Shore D scale. MacKnight Decl. ¶ 33. This measurement is well under 64, as required by the claims of the patents-in-suit.

114. For the reasons set forth above, the combination of the polyurethane cover disclosed in Molitor '751 with the Proudfit construction would constitute simply combining known elements (the construction of Proudfit and the cover material of Molitor '751) in a predictable way for predictable results. Thus, it is my opinion that claim 1 of the '293 patent would be obvious over Proudfit in view of Molitor '751.

B. Claim 2 of the '293 patent

115. Claim 2 of the '293 patent recites:

> 2. The golf ball according to claim 1, wherein said golf ball has an overall diameter of 1.680 inches or more.

116. The USGA Rules of Golf define the minimum diameter of a golf ball to be 1.680 inches. See, e.g., Nesbitt, col. 2, ll. 50-54. Since claim 2 of the '293 patent requires only that the golf ball conform with the Rules of Golf, there is nothing inventive about this claim.

1. Nesbitt teaches all elements of Claim 2 of the '293 patent

117. Nonetheless, Nesbitt explicitly discloses that the diameter of the golf ball is at least 1.680 inches. "According to the United States Golf Association Rules, the minimum diameter prescribed for a golf ball is 1.680 inches…." Nesbitt, col. 2:50-52; *see also* col. 3:34-38. Thus, for this reason, and all of the reasons set forth above for claim 1 of the '293 patent, Nesbitt anticipates claim 2 of the '293 patent. Alternatively, claim 2 is obvious over Nesbitt in view of Molitor '637. Claim 2 of the '293 patent is also obvious over a) Nesbitt in view of Wu; and b) Nesbitt in view of Molitor '751.

2. Proudfit teaches all elements of Claim 2 of the '293 patent

118. Proudfit also explicitly discloses that its golf ball has a diameter of 1.680 inches. "The preferred dimensions are a core diameter of 1.500 inch, and inner layer thickness of 0.037 inch (inner layer diameter of 1.575 inch), and an outer layer thickness of 0.0525 inch (total ball diameter of 1.680 inch)." Proudfit, col. 7:43-47. For that reason, and those set forth above for claim 1 of the '293 patent, claim 2 of the '293 patent is obvious over a) Proudfit in view of Molitor '637; b) Proudfit in view of Wu; and c) Proudfit in view of Molitor '751.

C. Claim 4 of the '293 patent

119. Claim 4 of the '293 patent recites:

> 4. A multi-layer golf ball comprising:

a spherical core;

an inner cover layer having Shore D hardness of about 60 or more molded over said spherical core, said inner cover layer comprising an ionomeric resin including no more than 16% by weight of an alpha, beta-unsaturated carboxylic acid and having a modulus of from about 15,000 to about 70,000 psi; and

an outer cover layer having a Shore D hardness of about 64 or less disposed about said inner cover layer and defining a plurality of dimples to form a multi-layer golf ball, said outer cover layer comprising polyurethane based material.

120. Claim 4 of the '293 patent is similar to claim 1 of the '293 patent with some differences. Claim 4 requires that the inner cover layer comprises a low-acid (<16%) ionomeric resin having a modulus of from about 15,000 to about 70,000 psi. Claim 4 also requires that the outer cover layer is dimpled. Both of these limitations are also met by the references discussed above with respect to claim 1 of the '293 patent.

1. Claim 4 of the '293 patent is anticipated by Nesbitt

121. The inner cover layer disclosed in Nesbitt is Surlyn 1605 (now 8940), which has a flexural modulus of about 51,000 psi. *See* '293 patent, col. 2:55-59; Surlyn Product Information.

122. Nesbitt also describes a dimpled outer cover. Nesbitt, col. 2:43-50.

123. Balls were made at the direction of Dr. William MacKnight that had the core described by Sullivan as the Nesbitt core, the inner cover material described by Nesbitt, and the Estane 58133 polyurethane material described by Molitor '637 as the outer cover layer material. The average Shore D hardness of the outer layer of these balls, as measured on the ball, was 62.0, which is less than 64. MacKnight Decl. ¶ 33. Thus, even under a claim construction that requires Shore D hardness to be measured on the ball, Nesbitt, incorporating by reference Molitor '637, meets the claimed hardness limitation.

124. For those reasons, and the reasons set forth for claim 1 of the '293 patent, Claim 4 of the '293 patent is anticipated by Nesbitt, which incorporates by reference Molitor '637.

2. Claim 4 of the '293 patent is obvious over Nesbitt in view of Molitor '637

125. The combination of the golf ball construction described by Nesbitt and the cover materials of Molitor '637 would render claim 4 of the '293 patent obvious for the same reasons that Nesbitt anticipates claim 4 of the '293 patent, which are set forth above, and for the reasons set forth with respect to claim 1 of the '293 patent.

3. Claim 4 of the '293 patent is obvious over Nesbitt in view of Wu

126. For the reasons set forth for claim 1 of the '293 patent, it would have been obvious to a person of ordinary skill in the art to modify the ball described by Nesbitt to use the cover material described in Wu as the outer cover material of the golf ball.

127. Balls were made at the direction of Dr. William MacKnight that had the core described by Sullivan as the Nesbitt core, the inner cover material described by Nesbitt, and the polyurethane material described by Wu in Example 1 as the outer cover layer material. The average Shore D hardness of the outer layer of these balls, as measured on the ball, was 56.0, which is less than 64. MacKnight Decl. ¶ 33. Thus, even under a claim construction that requires Shore D hardness to be measured on the ball, the golf ball of Nesbitt, modified to use the outer cover material described by Wu, meets the claimed hardness limitation.

128. For those reasons, the reasons set forth above with respect to Nesbitt anticipating claim 4 of the '293 patent, and set forth for claim 1 of the '293 patent, Claim 4 of the '293 patent would be obvious over Nesbitt in view of Wu.

4. Claim 4 of the '293 patent is obvious over Nesbitt in view of Molitor '751

129. For the reasons set forth for claim 1 of the '293 patent, it would have been obvious to a person of ordinary skill in the art to modify the ball described by Nesbitt to use the cover material described in Molitor '751 as the outer cover material of the golf ball.

130. In addition, Dr. MacKnight prepared ball samples having Nesbitt's core, an inner cover layer using the material described by Nesbitt, and an outer cover layer using a polyurethane / ionomer blend similar to the most preferred Example 4 in the Table on Columns 7 and 8 of Molitor '751. The cover material was identical to Example 4, except a slightly harder ionomer than that disclosed in Example 4 was used. Even with the harder ionomer being used, the average outer cover hardness of the sample balls was 50.1 on the Shore D scale. MacKnight Decl. ¶ 33. This measurement is well under 64, as required by the claims of the patents-in-suit. Thus, even under a claim construction that requires Shore D hardness to be measured on the ball, the golf ball of Nesbitt, modified to use the outer cover material described by Molitor '751, meets the claimed hardness limitation.

131. For those reasons, the reasons set forth above with respect to Nesbitt anticipating claim 4 of the '293 patent, and set forth for claim 1 of the '293 patent, Claim 4 of the '293 patent would be obvious over Nesbitt in view of Molitor '751.

5. Claim 4 of the '293 patent is obvious over Proudfit in view of Molitor '637, Wu, or Molitor '751

132. The inner cover layer disclosed in Proudfit is a blend of Surlyn 8940 and Surlyn 9910. These resins have a flexural modulus between about 30,000 to about 55,000 psi. "The standard resins have a flexural modulus in the range of about 30,000 to about 55,000 psi as measured by ASTM Method D-790." Proudfit, col. 5:66-6:1. Thus, the inner cover layer of Proudfit will inherently have a flexural modulus between 15,000 psi and 70,000 psi.

133. Proudfit also describes a dimpled outer cover. Proudfit, Fig. 1.

134. For those reasons, and the reasons set forth for claim 1 of the '293 patent, Claim 4 of the '293 patent would be obvious over a) Proudfit in view of Molitor '637; b) Proudfit in view of Wu; or c) Proudfit in view of Molitor '751.

D. Claim 5 of the '293 patent

135. Claim 5 of the '293 patent recites:

> 5. A golf ball according to claim 4, wherein said inner cover layer has a thickness of about 0.100 to about 0.010 inches and said outer cover layer has a thickness of about 0.010 to about 0.070 inches, said golf ball having an overall diameter of 1.680 inches or more.

136. For the reasons set forth for claims 1, 2 and 4 of the '293 patent, claim 5 of the '293 patent is:

a. anticipated by Nesbitt, or in the alternative, obvious over Nesbitt in view of Molitor '637;

b. obvious over Nesbitt in view of Wu;

c. obvious over Nesbitt in view of Molitor '751;

d. obvious over Proudfit in view of Molitor '637;

e. obvious over Proudfit in view of Wu; and

f. obvious over Proudfit in view of Molitor '751.

E. Claim 7 of the '293 patent

137. Claim 7 of the '293 patent recites:

> 7. A multi-layer golf ball comprising:
>
> a spherical core;
>
> an inner cover layer molded over said spherical core to form a spherical intermediate ball, said inner cover layer having a Shore D hardness of at least 60, said inner cover layer comprising an ionomeric resin having no more than 16% by weight of an alpha, beta-unsaturated

carboxylic acid and having a modulus of from about 15,000 to about 70,000 psi; and

a dimpled outer cover layer molded over said spherical intermediate ball to form a multi-layer golf ball, said outer cover having a Shore D hardness of 64 or less, said outer layer comprising a polyurethane, said outer cover layer having a modulus in a range of about 1,000 to about 30,000 psi.

138. Claim 7 of the '293 patent has similar limitations to those variously recited in claims 1 and 4 of the '293 patent, with some differences. Claim 7 requires that the outer cover layer has a modulus in the range of about 1,000 to about 30,000 psi.

139. The outer cover layer material described in Nesbitt (Surlyn 1855) has a flexural modulus of about 14,000 psi. *See* Surlyn Product Information.

140. The outer cover layer material described in Proudfit has a flexural modulus between 1,000 psi and 30,000 psi. "The relatively soft elastomeric material of the outer layer has a flexural modulus in the range of about 20,000 to 25,000 psi, and in one specific embodiment had a flexural modulus of from 22,165 to 22,369 psi." Proudfit, col. 6:28-31.

141. The Estane 58133 polyurethane disclosed in Molitor '637 has a modulus of 25,000 psi. *See* Estane 58133 Product Specification Sheet.

142. The polyurethane described as Example 1 in Wu has a flexural modulus of about 23,000 psi. Dalton PTO Decl. ¶ 7.

143. For those reasons, and the reasons set forth for claims 1 and 4 of the '293 patent, claim 7 of the '293 patent is:

a. anticipated by Nesbitt, or in the alternative, obvious over Nesbitt in view of Molitor '637;

b. obvious over Nesbitt in view of Wu;

c. obvious over Proudfit in view of Molitor '637;

d. obvious over Proudfit in view of Wu; and

F. Claim 8 of the '293 patent

144. Claim 8 of the '293 patent recites:

> 8. The multi-layer golf ball of claim 7 wherein the Shore D hardness of said outer cover layer is less than the Shore D hardness of said inner cover layer.

145. Nesbitt discloses that the inner cover layer is harder than the outer cover layer. "The disclosure embraces a golf ball and method of making same wherein the golf ball has a solid … resilient center or core, and a multilayer construction, which involves a first layer or ply of molded hard, high flexural modulus resinous material on the core, and a second or cover layer of soft, low flexural modulus resinous material molded over the first layer to firm a finished golf ball." Nesbitt, Abstract.

146. Proudfit discloses that the inner cover layer is harder than the outer cover layer. "This invention relates to golf balls, and, more particularly, to a golf ball having a two-layer cover. The inner layer is formed from hard resin material such as ionomer resin, and the outer layer is formed from soft material such as balata or a blend of balata and other elastomers." Proudfit, col. 1:11-16.

147. For those reasons, and the reasons set forth for claims 1, 4, and 7 of the '293 patent, claim 8 of the '293 patent is :

a. anticipated by Nesbitt, or in the alternative, obvious over Nesbitt in view of Molitor '637;

b. obvious over Nesbitt in view of Wu;

c. obvious over Proudfit in view of Molitor '637;

d. obvious over Proudfit in view of Wu; and

G. Claim 1 of the '156 patent

148. Claim 1 of the '156 patent recites:

> 1. A golf ball comprising:
>
> a core;

an inner cover layer disposed on said core, said inner cover layer having a Shore D hardness of at least 60, said inner cover layer comprising a blend of two or more low acid ionomer resins, each containing no more than 16% by weight of an alpha, beta-unsaturated carboxylic acid;

and an outer cover layer disposed on said inner cover layer, said outer cover layer having a Shore D hardness of about 64 or less, a thickness of from about 0.01 to about 0.07 inches, and comprising a polyurethane material.

149. For the reasons set forth with respect to claim 1 of the '293 patent, claim 1 of the '156 patent is:

a. anticipated by Nesbitt, or in the alternative, obvious over Nesbitt in view of Molitor '637;

b. obvious over Nesbitt in view of Wu;

c. obvious over Nesbitt in view of Molitor '751;

d. obvious over Proudfit in view of Molitor '637;

e. obvious over Proudfit in view of Wu; and

f. obvious over Proudfit in view of Molitor '751.

H. Claim 2 of the '156 patent

150. Claim 2 of the '156 patent recites:

2. The golf ball of claim 1 wherein said outer cover layer has a thickness of from about 0.01 to about 0.05 inches.

1. Nesbitt teaches all elements of Claim 2 of the '156 patent

151. Nesbitt teaches a golf ball with an outer cover layer whose thickness is from about 0.010 to 0.050 inches. "The thickness of the outer layer or cover 16 of soft, low flexural

modulus resin such as Surlyn type 1855, may be in the range of 0.020 inches and 0.100 inches." Nesbitt, col. 3:22-25. "The outer layer of the soft resin is of a thickness of 0.0575 inches." Nesbitt, col. 2:50-52. Thus, the lower end of the range of outer cover thicknesses disclosed in Nesbitt (0.020 inches) is within the range claimed in claim 2 of the '156 patent, and the specific outer cover layer thickness disclosed in Nesbitt (0.0575 inches) is within the approximate range claimed in claim 2 of the '156 patent. At a minimum, claimed thickness range of about 0.010 to 0.050 inches would be obvious in light of these disclosures in Nesbitt.

152. For those reasons and the reasons set forth with respect to claim 1 of the '293 patent and claim 1 of the '156 patent, claim 2 of the '156 patent is:

a. anticipated by Nesbitt, or in the alternative, obvious over Nesbitt in view of Molitor '637;

b. obvious over Nesbitt in view of Wu;

c. obvious over Nesbitt in view of Molitor '751;

2. Proudfit teaches all elements of Claim 2 of the '156 patent

153. Proudfit teaches a golf ball with an outer cover layer whose thickness is from about 0.010 to 0.050 inches. "The thickness of the outer layer can be within the range of about 0.0450 to 0.0650 inch to provide a total ball diameter of 1.680 inch. The preferred dimensions are … an outer layer thickness of 0.0525 inch…." Proudfit, col. 7:40-46. Thus, the lower end of the range of outer cover thicknesses disclosed in Proudfit (0.0450 inches) is within the range claimed in claim 2 of the '156 patent, and the specific outer cover layer thickness disclosed in Proudfit (0.0525 inches) is within the approximate range claimed in claim 2 of the '156 patent. At a minimum, claimed thickness range of about 0.010 to 0.050 inches would be obvious in light of these disclosures in Proudfit.

154. For those reasons and the reasons set forth with respect to claim 1 of the '293 patent and claim 1 of the '156 patent, claim 2 of the '156 patent is:

a. obvious over Proudfit in view of Molitor '637;

b. obvious over Proudfit in view of Wu; and

c. obvious over Proudfit in view of Molitor '751.

I. Claim 3 of the '156 patent

155. Claim 3 of the '156 patent recites:

> 3. The golf ball of claim 1 wherein said outer cover layer has a thickness of from about 0.03 to about 0.06 inches.

1. Nesbitt teaches all elements of Claim 3 of the '156 patent

156. Nesbitt teaches a golf ball with an outer cover layer whose thickness is from about 0.030 to 0.060 inches. "The thickness of the outer layer or cover 16 of soft, low flexural modulus resin such as Surlyn type 1855, may be in the range of 0.020 inches and 0.100 inches." Nesbitt, col. 3:22-25. "The outer layer of the soft resin is of a thickness of 0.0575 inches." Nesbitt, col. 2:50-52. Thus, the specific outer cover layer thickness disclosed in Nesbitt (0.0575 inches) is within the range claimed in claim 3 of the '156 patent.

157. For those reasons and the reasons set forth with respect to claim 1 of the '293 patent and claim 1 of the '156 patent, claim 3 of the '156 patent is:

a. anticipated by Nesbitt, or in the alternative, obvious over Nesbitt in view of Molitor '637;

b. obvious over Nesbitt in view of Wu;

c. obvious over Nesbitt in view of Molitor '751;

2. Proudfit teaches all elements of Claim 3 of the '156 patent

158. Proudfit teaches a golf ball with an outer cover layer whose thickness is from about 0.030 to 0.060 inches. "The thickness of the outer layer can be within the range of about 0.0450 to 0.0650 inch to provide a total ball diameter of 1.680 inch. The preferred dimensions are … an outer layer thickness of 0.0525 inch…." Proudfit, col. 7:40-46. Thus, the lower end of

the range of outer cover thicknesses disclosed in Proudfit (0.0450 inches) is within the range claimed in claim 3 of the '156 patent, and the specific outer cover layer thickness disclosed in Proudfit (0.0525 inches) is within the range claimed in claim 3 of the '156 patent.

159. For those reasons and the reasons set forth with respect to claim 1 of the '293 patent and claim 1 of the '156 patent, claim 3 of the '156 patent is:

a. obvious over Proudfit in view of Molitor '637;

b. obvious over Proudfit in view of Wu; and

c. obvious over Proudfit in view of Molitor '751.

J. Claim 4 of the '156 patent

160. Claim 4 of the '156 patent recites:

4. A golf ball comprising:

a core:

an inner cover layer disposed about said core, said inner cover layer having a Shore D hardness of at least 60, said inner cover layer comprising a blend of two or more ionomeric resins, each containing no more than 16% by weight of an alpha, beta-unsaturated carboxylic acid;

and an outer cover layer disposed on said inner cover layer, said outer cover layer having a thickness of from about 0.01 to about 0.07 inches, and comprising a polyurethane material.

161. For the reasons set forth with respect to claim 1 of the '293 patent, claim 4 of the '156 patent is:

a. anticipated by Nesbitt, or in the alternative, obvious over Nesbitt in view of Molitor '637;

b. obvious over Nesbitt in view of Wu;

c. obvious over Nesbitt in view of Molitor '751;

d. obvious over Proudfit in view of Molitor '637;

e. obvious over Proudfit in view of Wu; and

f. obvious over Proudfit in view of Molitor '751.

K. Claim 5 of the '156 patent

162. Claim 5 of the '156 patent recites:

> 5. The golf ball of claim 4 wherein said outer cover exhibits a Shore D hardness of about 64 or less.

163. For the reasons set forth with respect to claim 1 of the '293 patent, claim 5 of the '156 patent is:

a. anticipated by Nesbitt, or in the alternative, obvious over Nesbitt in view of Molitor '637;

b. obvious over Nesbitt in view of Wu;

c. obvious over Nesbitt in view of Molitor '751;

d. obvious over Proudfit in view of Molitor '637;

e. obvious over Proudfit in view of Wu; and

f. obvious over Proudfit in view of Molitor '751.

L. Claim 6 of the '156 patent

164. Claim 6 of the '156 patent recites:

> 6. The golf ball of claim 4 wherein said outer cover layer has a thickness of from about 0.01 to about 0.05 inches.

165. For the reasons set forth with respect to claims 1 of the '293 patent and claim 2 of the '156 patent, claim 6 of the '156 patent is:

a. anticipated by Nesbitt, or in the alternative, obvious over Nesbitt in view of Molitor '637;

b. obvious over Nesbitt in view of Wu;

c. obvious over Nesbitt in view of Molitor '751;

d. obvious over Proudfit in view of Molitor '637;

e. obvious over Proudfit in view of Wu; and

f. obvious over Proudfit in view of Molitor '751.

M. Claim 7 of the '156 patent

166. Claim 7 of the '156 patent recites:

> 7. The golf ball of claim 4 wherein said outer cover layer has a thickness of from about 0.03 to about 0.06 inches.

167. For the reasons set forth with respect to claim 1 of the '293 patent and claim 3 of the '156 patent, claim 7 of the '156 patent is:

a. anticipated by Nesbitt, or in the alternative, obvious over Nesbitt in view of Molitor '637;

b. obvious over Nesbitt in view of Wu;

c. obvious over Nesbitt in view of Molitor '751;

d. obvious over Proudfit in view of Molitor '637;

e. obvious over Proudfit in view of Wu; and

f. obvious over Proudfit in view of Molitor '751.

N. Claim 8 of the '156 patent

168. Claim 8 of the '156 patent recites:

> 8. A golf ball comprising:
>
> a core:
>
> an inner cover layer disposed on said core, said inner cover layer having a Shore D hardness of about 60 or more, said inner cover layer comprising an ionomeric resin including no more than 16% by weight of an alpha, beta-unsaturated carboxylic acid and having a modulus of from about 15,000 to about 70,000 psi;

and an outer cover layer disposed about said inner cover layer, said outer cover layer having a thickness of from about 0.01 to about 0.07 inches, and comprising a polyurethane material.

169. For the reasons set forth with respect to claims 1 and 4 of the '293 patent, claim 8 of the '156 patent is:

a. anticipated by Nesbitt, or in the alternative, obvious over Nesbitt in view of Molitor '637;

b. obvious over Nesbitt in view of Wu;

c. obvious over Nesbitt in view of Molitor '751;

d. obvious over Proudfit in view of Molitor '637;

e. obvious over Proudfit in view of Wu; and

f. obvious over Proudfit in view of Molitor '751.

O. Claim 9 of the '156 patent

170. Claim 9 of the '156 patent recites:

9. The golf ball of claim 8 wherein said outer cover exhibits a Shore D hardness of about 64 or less.

171. For the reasons set forth with respect to claims 1 and 4 of the '293 patent, claim 9 of the '156 patent is:

a. anticipated by Nesbitt, or in the alternative, obvious over Nesbitt in view of Molitor '637;

b. obvious over Nesbitt in view of Wu;

c. obvious over Nesbitt in view of Molitor '751;

d. obvious over Proudfit in view of Molitor '637;

e. obvious over Proudfit in view of Wu; and

f. obvious over Proudfit in view of Molitor '751.

P. Claim 10 of the '156 patent

172. Claim 10 of the '156 patent recites:

> 10. The golf ball of claim 8 wherein said outer cover layer has a thickness of from about 0.01 to about 0.05 inches.

173. For the reasons set forth with respect to claims 1 and 4 of the '293 patent and claim 2 of the '156 patent, claim 10 of the '156 patent is:

a. anticipated by Nesbitt, or in the alternative, obvious over Nesbitt in view of Molitor '637;

b. obvious over Nesbitt in view of Wu;

c. obvious over Nesbitt in view of Molitor '751;

d. obvious over Proudfit in view of Molitor '637;

e. obvious over Proudfit in view of Wu; and

f. obvious over Proudfit in view of Molitor '751.

Q. Claim 11 of the '156 patent

174. Claim 11 of the '156 patent recites:

> 11. The golf ball of claim 8 wherein said outer cover layer has a thickness of from about 0.03 to about 0.06 inches.

175. For the reasons set forth with respect to claims 1 and 4 of the '293 patent and claim 3 of the '156 patent, claim 11 of the '156 patent is:

a. anticipated by Nesbitt, or in the alternative, obvious over Nesbitt in view of Molitor '637;

b. obvious over Nesbitt in view of Wu;

c. obvious over Nesbitt in view of Molitor '751;

d. obvious over Proudfit in view of Molitor '637;

e. obvious over Proudfit in view of Wu; and

f. obvious over Proudfit in view of Molitor '751.

R. Claim 1 of the '130 patent

176. Claim 1 of the '130 patent recites:

> 1. A golf ball comprising:
>
> a core;
>
> an inner cover layer having a Shore D hardness of 60 or more molded on said core, the inner cover layer comprising a blend of two or more low acid ionomer resins containing no more than 16% by weight of an alpha, beta-unsaturated carboxylic acid;
>
> and an outer cover layer having a Shore D hardness of 64 or less molded on said inner cover layer, said outer cover layer comprising a relatively soft polymeric material selected from the group consisting of non-ionomeric thermoplastic and thermosetting elastomers.

177. As discussed in detail above, Molitor '637, Wu, and Molitor '751 all disclose polyurethane cover materials to be used as the outer cover of a golf ball. The polyurethane cover materials disclosed in those references are in the group consisting of non-ionomeric thermoplastic and thermosetting elastomers.

178. For those reasons and the reasons set forth with respect to claim 1 of the '293 patent, claim 1 of the '130 patent is:

a. anticipated by Nesbitt, or in the alternative, obvious over Nesbitt in view of Molitor '637;

b. obvious over Nesbitt in view of Wu;

c. obvious over Nesbitt in view of Molitor '751;

d. obvious over Proudfit in view of Molitor '637;

e. obvious over Proudfit in view of Wu; and

f. obvious over Proudfit in view of Molitor '751.

1. Claim 1 of the '130 patent is anticipated by Proudfit

179. Proudfit discloses all of the elements of claim 1 of the '130 patent. Claim 1 of the '130 patent is very similar to claim 1 of the '293 patent. The main difference is that while claim 1 of the '293 patent specifically claims polyurethane as the outer cover material, claim 1 of the '130 patent instead claims "a relatively soft polymeric material selected from the group consisting of non-ionomeric thermoplastic and thermosetting elastomers" as the outer cover material. Such an outer cover material is disclosed in Proudfit.

180. Specifically, as set forth in detail above, Proudfit discloses a multi-layer golf ball with a relatively hard blended ionomer inner cover layer and a blend of polybutadiene and balata-like material as the outer cover layer. *See* discussion above of claim 1 of the '293 patent compared to Proudfit.

181. The chart below sets for the shows the specific disclosures in Proudfit that are set forth in claim 1 of the '130 patent:

Claim 1 of '130 patent	**Proudfit**
1. A golf ball comprising:	"This invention relates to golf balls, and more particularly, to a golf ball having a two-layer cover." Proudfit, col. 1:11-12; Figs. 1-2.
A core;	"FIG. 1 illustrates a two-piece golf ball 10 which includes a solid core 11 and a cover 12 which comprises a relatively hard inner layer 13 of one or more ionomer resins and a relatively soft outer layer 14 of polymeric material." Proudfit, col. 7:21-24; Figs 1-2; *see also* col. 7:51-55.
an inner cover layer having	"FIG. 1 illustrates a two-piece golf ball 10 which includes a solid core 11 and a cover 12 which comprises a relatively hard inner layer 13 of one or more ionomer resins and a relatively soft outer layer 14 of polymeric material." Proudfit, col. 7:21-24; Figs 1-2.
a Shore D hardness of 60 or more molded on said core,	"The composition of the inner cover layer is described in Table 6." Proudfit, col. 8:22-30. Table 6 sets forth a blend of ionomers that consists of 75% Surlyn 8940 and 25% Surlyn 9910. *Id.* Surlyn 8940 has a Shore D hardness of 65, as measured off the ball. Surlyn 9910 has a Shore D hardness of 64, as measured off

Claim 1 of '130 patent	Proudfit
	the ball. *See* Surlyn Product Information. Thus, this blend of ionomers would have a Shore D hardness of between 64 and 65, which is greater than 60. The inner cover material is molded, by one of two methods, over the core. Proudfit, col. 8:32-38.
the inner cover layer comprising a blend of two or more low acid ionomer resins containing no more than 16% by weight of an alpha, beta-unsaturated carboxylic acid; and	Surlyn 8940 and Surlyn 9910 are both low acid ionomers containing no more than 16% by weight of an alpha, beta-unsaturated carboxylic acid.
an outer cover layer having a Shore D hardness of 64 or less molded on said inner cover layer,	"FIG. 1 illustrates a two-piece golf ball 10 which includes a solid core 11 and a cover 12 which comprises a relatively hard inner layer 13 of one or more ionomer resins and a relatively soft outer layer 14 of polymeric material." Proudfit, col. 7:21-24; *see also* Figs 1-2. "… an outer layer of soft material such as balata or a blend of balata and other elastomers." Proudfit, col. 5:15-17. It was well known to people of ordinary skill in the art in 1995 that balata had a shore D of less than 64. In addition, Proudfit describes a blend of polybutadiene and thermoset elastomer like balata as an example of the cover material in Table 7. Proudfit, col. 8:43-55. According to the Declaration of Ed. Hebert, submitted as part of the reexamination proceedings, this material has a Shore D hardness of less than 64. Hebert PTO Decl. ¶ 7.
said outer cover layer comprising a relatively soft polymeric material selected from the group consisting of non-ionomeric thermoplastic and thermosetting elastomers	Proudfit discloses the use of a soft polymeric outer cover layer material in the group consisting of non-ionomeric thermoplastic and thermosetting elastomers. "FIG. 1 illustrates a two-piece golf ball 10 which includes a solid core 11 and a cover 12 which comprises a relatively hard inner layer 13 of one or more ionomer resins and a relatively soft outer layer 14 of polymeric material." Proudfit, col. 7:21-24; *see also* Figs 1-2. "… an outer layer of soft material such as balata or a blend of balata and other elastomers." Proudfit, col. 5:15-17. Table 7 sets forth the composition of the outer cover layer of the preferred embodiment of Proudfit. Proudfit, col. 8:45-55. This

Claim 1 of '130 patent	Proudfit
	composition includes polybutadiene and TP-301 (synthetic balata). A person of ordinary skill in the art would readily have understood that both of these materials are relatively soft polymeric materials that are non-ionomeric thermoset elastomers.

182. Accordingly, for those reasons, it is my opinion that claim 1 of the '130 patent is anticipated by Proudfit.

S. Claim 2 of the '130 patent

183. Claim 2 of the '130 patent recites:

> 2. A golf ball according to claim 1, wherein the inner cover layer has a thickness of about 0.100 to about 0.010 inches and the outer cover layer has a thickness of about 0.010 to about 0.070 inches, the golf ball having the properties required by the U.S.G.A. and having an overall diameter of 1.680 inches or more.

184. For the reasons set forth with respect to claims 1 and 2 of the '293 patent, claim 2 of the '130 patent is:

a. anticipated by Nesbitt, or in the alternative, obvious over Nesbitt in view of Molitor '637;

b. obvious over Nesbitt in view of Wu;

c. obvious over Nesbitt in view of Molitor '751;

d. obvious over Proudfit in view of Molitor '637;

e. obvious over Proudfit in view of Wu; and

f. obvious over Proudfit in view of Molitor '751.

1. Claim 2 of the '130 patent is anticipated by Proudfit

185. Proudfit discloses all of the elements of claim 2 of the '130 patent. The chart below sets for the shows the specific disclosures in Proudfit that are set forth in claim 2 of the '130 patent:

Claim 2 of '130 patent	Proudfit
2. A golf ball according to claim 1,	See discussion of claim 1 of the '130 patent compared to Proudfit.
wherein the inner cover layer has a thickness of about 0.100 to about 0.010 inches and	"The thickness of the inner layer can be within the range of about 0.0250 to 0.2875 inch to provide a total diameter of the inner layer and core within the range of about 1.550 to 1.590 inch." Proudfit, col. 7:37-40. "The preferred dimensions are … inner layer thickness of 0.037 inch." Proudfit, col. 7:43-44.
the outer cover layer has a thickness of about 0.010 to about 0.070 inches,	"The thickness of the outer layer can be within the range of about 0.0450 to 0.0650 inch to provide a total ball diameter of 1.680 inch. The preferred dimensions are … an outer layer thickness of 0.0525 inch…." Proudfit, col. 7:40-46.
the golf ball having the properties required by the U.S.G.A. and having an overall diameter of 1.680 inches or more.	The USGA Rules of Golf define the minimum diameter of a golf ball to be 1.680 inches. See, e.g., Nesbitt, col. 2, ll. 50-54. A person of ordinary skill in the art would understand that it was an inherent property of the golf ball disclosed in Proudfit that it must have the properties required by the U.S.G.A. Proudfit explicitly discloses that its golf ball has a diameter of 1.680 inches. "The preferred dimensions are a core diameter of 1.500 inch, and inner layer thickness of 0.037 inch (inner layer diameter of 1.575 inch), and an outer layer thickness of 0.0525 inch (total ball diameter of 1.680 inch)." Proudfit, col. 7:43-47.

186. Accordingly, for those reasons, it is my opinion that claim 2 of the '130 patent is anticipated by Proudfit.

T. Claim 4 of the '130 patent

187. Claim 4 of the '130 patent recites:

> 4. A golf ball according to claim 1 wherein the outer layer comprises a polyurethane based material.

188. For those the reasons set forth with respect to claim 1 of the '293 patent, claim 4 of the '130 patent is:

a. anticipated by Nesbitt, or in the alternative, obvious over Nesbitt in view of Molitor '637;

b. obvious over Nesbitt in view of Wu;

c. obvious over Nesbitt in view of Molitor '751;

d. obvious over Proudfit in view of Molitor '637;

e. obvious over Proudfit in view of Wu; and

f. obvious over Proudfit in view of Molitor '751.

U. Claim 5 of the '130 patent

189. Claim 5 of the '130 patent recites:

5. A multi-layer golf ball comprising:

a spherical core;

an inner cover layer having a Shore D hardness of about 60 or more molded over said spherical core, said inner cover layer comprising an ionomeric resin including no more than 16% by weight of an alpha, beta-unsaturated carboxylic acid and having a modulus of from about 15,000 to about 70,000 psi;

an outer cover layer having a Shore D hardness of about 64 or less molded over said spherical intermediate ball to form a multi-layer golf ball, the outer layer comprising polyurethane based material.

190. For the reasons set forth with respect to claims 1 and 4 of the '293 patent, claim 5 of the '130 patent is:

a. anticipated by Nesbitt, or in the alternative, obvious over Nesbitt in view of Molitor '637;

b. obvious over Nesbitt in view of Wu;

c. obvious over Nesbitt in view of Molitor '751;

d. obvious over Proudfit in view of Molitor '637;

e. obvious over Proudfit in view of Wu; and

f. obvious over Proudfit in view of Molitor '751.

V. Claim 6 of the '130 patent

191. Claim 6 of the '130 patent recites:

6. A multi-layer golf ball comprising:

a spherical core;

an inner cover layer molded over said spherical core to form a spherical intermediate ball, said inner cover layer having a Shore D hardness of 60 or greater and comprising an ionomeric resin having no more than 16% by weight of an alpha, beta-unsaturated carboxylic acid and having a modulus of from about 15,000 to about 70,000 psi;

an outer cover layer molded about said spherical intermediate ball to form a multi-layer golf ball, the outer layer comprising a non-ionomeric elastomer selected from the group consisting of polyester elastomer, polyester, polyether polyurethane and polyester amide, said outer cover layer having a modulus in the range of about 1,000 to about 30,000 psi and a Shore D hardness of 64 or less.

192. For the reasons set forth with respect to claims 1, 4, and 7 of the '293 patent, claim 6 of the '130 patent is:

a. anticipated by Nesbitt, or in the alternative, obvious over Nesbitt in view of Molitor '637;

b. obvious over Nesbitt in view of Wu;

c. obvious over Proudfit in view of Molitor '637;

d. obvious over Proudfit in view of Wu; and

W. Claim 1 of the '873 patent

193. Claim 1 of the '873 patent recites:

1. A golf ball comprising:

a core;

an inner cover layer disposed on said core, said inner cover layer having a thickness of from about 0.100 to about 0.010 inches, said inner cover layer comprising a blend of two or more ionomer resins, at least one of which contains no more than 16% by weight of an alpha, beta-unsaturated carboxylic acid;

and an outer cover layer disposed on said inner cover layer, said outer cover layer having a thickness of 0.010 to 0.070 inches, and said outer cover layer comprising a polyurethane material, wherein said golf ball has an overall diameter of 1.680 inches or more, said inner cover layer having a Shore D hardness of at least 60, and said outer cover layer having a Shore D hardness of less than 64.

194. For the reasons set forth with respect to claims 1 and 2 of the '293 patent, claim 1 of the '873 patent is:

a. anticipated by Nesbitt, or in the alternative, obvious over Nesbitt in view of Molitor '637;

b. obvious over Nesbitt in view of Wu;

c. obvious over Nesbitt in view of Molitor '751;

d. obvious over Proudfit in view of Molitor '637;

e. obvious over Proudfit in view of Wu; and

f. obvious over Proudfit in view of Molitor '751.

X. Claim 3 of the '873 patent

195. Claim 3 of the '873 patent:

3. A multi-layer golf ball comprising:

a spherical core;

an inner cover layer having Shore D hardness of at least 60 disposed on said spherical core, said inner cover layer comprising an ionomeric resin including no more than 16% by weight of an alpha, beta-unsaturated carboxylic acid and having a modulus of from about 15,000 to about 70,000 psi;

and an outer cover layer having a Shore D hardness of about 64 or less disposed about said inner cover layer and defining a plurality of dimples to form a multi-layer golf ball, said outer cover layer comprising a polyurethane based material and said outer cover layer having a thickness of from about 0.010 to about 0.070 inches.

196. For the reasons set forth with respect to claims 1 and 4 of the '293 patent, claim 3 of the '873 patent is:

a. anticipated by Nesbitt, or in the alternative, obvious over Nesbitt in view of Molitor '637;

b. obvious over Nesbitt in view of Wu;

c. obvious over Nesbitt in view of Molitor '751;

d. obvious over Proudfit in view of Molitor '637;

e. obvious over Proudfit in view of Wu; and

f. obvious over Proudfit in view of Molitor '751.

Y. Prior Art Golf Balls

197. In addition to the combinations of prior art patent references above, I have also examined the properties and materials of prior art golf balls, in particular, the Wilson Ultra Tour Balata 100, Titleist Professional, and Titleist Professional 2P golf balls.

198. I relied on the declaration of Ed Hebert, Senior Manager of Product Development at Acushnet, which was submitted in the reexaminations of the patents-in-suit, as well as the competitive ball database information Mr. Hebert attaches to that declaration for the properties of

the Wilson Ultra Tour Balata 100 ball. In addition, I have reviewed and relied on Acushnet's 1993 competitive ball report entry for the Wilson Ultra Tour Balata 100 ball itself (produced at bates number AC0072945).

199. The Wilson Ultra Tour Balata 100 golf ball released in 1993 was a multi-layer golf ball. As part of the routine testing Acushnet performs on competitive balls, Acushnet measured the dimensions and physical properties of the Wilson Ultra Tour Balata 100 ball, and measured physical properties of the golf ball, such as Shore D hardness of the cover layers.

200. According to Acushnet's testing in 1993, the Wilson Ultra Tour Balata 100 had the following properties. It had a solid core. It had an inner cover layer whose thickness was 0.030 inches. The inner cover layer was made from a blend of sodium and zinc ionomers. The inner cover layer had a Shore D hardness of about 70. It had an outer cover layer whose thickness was 0.050 inches. The outer cover layer was a blend of polybutadiene and synthetic balata. The outer cover layer had a Shore D hardness of about 52. The ball also had dimples. *See* AC0072945.

201. In addition, I understand that the Wilson Ultra Tour Balata 100 had an inner cover layer that was made of a blend of Surlyn 8940 and Surlyn 9910. Surlyn 8940 is a low-acid (<16%) sodium ionomer and Surlyn 9910 is a low-acid (<16%) zinc ionomer. This is consistent with the testing of the Wilson Ultra Tour Balata 100 that Acushnet did.

202. Based on the properties of the Wilson Ultra Tour Balata 100, it is very similar to the description of the golf ball in Proudfit. In particular, Proudfit describes similar dimensions for the inner cover layer (between 0.0250 and 0.2875 inches), similar dimensions for the outer cover layer (0.0450 to 0.0650 inches), similar materials for the inner cover layer (blend of sodium and zinc ionomers Surlyn 8940 and 9910), and similar materials for the outer cover layer (blend of polybutadiene and synthetic balata). In addition, as described above with respect to the Proudfit patent, Surlyns 8940 and 9910 are standard ionomers with a flexural modulus from 30,000 to about 55,000, which is well within the claimed range of from about 15,000 to about 70,000 psi.

203. With the exception of the use of polyurethane as an outer cover layer material, the Wilson Ultra Tour Balata 100 satisfies every limitation of claims 1-2, 4-5, and 7-8 of the '293 patent, claims 1-11 of the '156 patent, claims 1-2 and 4-6 of the 130 patent, and claims 1 and 3 of the '873 patent. In particular, the golf ball had:

a. a spherical core;

b. an inner cover layer having a Shore D hardness of 60 or more (70);

c. an inner cover layer with a thickness of 0.100 to 0.010 inches (0.030);

d. an inner cover layer with a blend of low acid ionomers;

e. an inner cover layer made of materials whose flexural modulus is between about 15,000 and about 70,000 psi;

f. an outer cover layer having a Shore D hardness of 64 of less (52);

g. an outer cover layer with a thickness of 0.010 to 0.070 inches (0.050);

h. an outer cover layer with a thickness of between 0.010 and 0.050 inches (0.050);

i. an outer cover layer with a thickness of between 0.030 and 0.060 inches (0.050);

j. an outer cover layer made of material whose flexural modulus is between about 1,000 and 30,000 psi;

k. an outer cover layer whose Shore D hardness is less than the Shore D hardness of the inner cover layer;

l. an overall diameter of 1.680 inches; and

m. dimples on the outer cover layer.

204. For the same reasons that it would have been obvious to use the polyurethane cover materials disclosed in Wu and Molitor '751 as the cover material of the golf ball described by Proudfit, it would have also been obvious to use those polyurethane cover materials as a replacement for the cover material of the Wilson Ultra Tour Balata 100 golf ball. For example, Wu suggests using its polyurethane as a replacement cover material for balata-covered golf balls.

Wu, col. 1:34-46; 2:28-32. And Molitor '751 suggests using its polyurethane as a replacement cover material for multilayer golf balls. Molitor '751, col. 3:7-12.

205. If the Wilson Ultra Tour Balata 100 were modified to use the polyurethanes described in Wu or Molitor '751 as the outer cover layer, it is my opinion that the outer cover layer of that modified ball would have similar properties to the outer cover layer of a ball described by Proudfit that has been modified to use the polyurethanes described in Wu or Molitor '751 as the outer cover layer.

206. For the reasons stated above and those stated with respect to my discussion of Proudfit, it is my opinion that claims 1-2, 4-5, and 7-8 of the '293 patent, claims 1-11 of the '156 patent, claims 1-2 and 4-6 of the 130 patent, and claims 1 and 3 of the '873 patent are:

a. obvious over the Wilson Ultra Tour Balata 100 golf ball in view of Wu.

b. obvious over the Wilson Ultra Tour Balata 100 golf ball in view of Molitor '751.

207. For the reasons stated above, it is my opinion that claims 1-3 of the '130 patent are anticipated by the Wilson Ultra Tour Balata 100 golf ball.

208. In addition, the Titleist Professional and Titleist Professional 2P were both sold by Acushnet as of 1994. Based on my investigation of these balls, including discussions with Acushnet personnel, both of these golf balls had a polyurethane very similar, if not identical, to the polyurethane described in the Wu patent. The Titleist Professional had a wound core and a polyurethane cover. The Titleist Professional 2P had a solid core and a polyurethane cover.

209. As I have discussed extensively in this report, a person of ordinary skill in the art in 1995 would have known about the benefits of polyurethane as a cover material, since polyurethanes had been used as cover materials in golf balls for years, dating back at least to the Spalding Executive. In addition, it was commonplace in 1995 for golf ball designers to experiment with replacing cover materials with other cover materials that had similar mechanical properties. Thus, it would have been obvious to a person of ordinary skill in the art to modify

the Wilson Ultra Tour Balata 100 golf ball by using the polyurethane of the Titleist Professional or the Titleist Professional 2P as the material for the outer cover layer of the ball.

210. For the reasons set forth above in this section and the reasons set forth in this report with respect to the combination of Proudfit and Wu, it is my opinion that claims 1-2, 4-5, and 7-8 of the '293 patent, claims 1-11 of the '156 patent, claims 1-2 and 4-6 of the 130 patent, and claims 1 and 3 of the '873 patent are:

a. obvious over the Wilson Ultra Tour Balata 100 golf ball in view of the Titleist Professional golf ball; and

b. obvious over the Wilson Ultra Tour Balata 100 golf ball in view of the Titleist Professional 2P golf ball.

211. If I am provided additional test data or information regarding the Wilson Ultra Tour Balata 100, Titleist Professional or Titleist Professional 2P golf balls, I reserve the right to analyze that test data and/or information to supplement my analysis and opinions expressed in this section of my report.

VIII. SECONDARY FACTORS

212. I understand that the secondary factors that may sometimes bear on the question of obviousness or non-obviousness include commercial success of the invention, a long-felt but unsolved need for the invention, the failure of others to invent the claimed subject matter, an unexpected or improved result due to the invention, and commercial acquiescence to the validity of the patent. I also understand that, in asserting that these factors demonstrate the non-obviousness of a patent, a patentee must establish that a nexus exists between any such asserted objective evidence and the claimed features of the invention.

213. I have read Callaway's response to the office actions in the pending reexaminations of the patents-in-suit, in which Callaway discusses purported secondary factors of non-obviousness in this case. I have also read Callaway's supplemental response to

Acushnet's Interrogatory No. 7, in which Callaway sets forth additional alleged secondary factors of non-obviousness.

A. Commercial Success

214. From Callaway's contentions, I understand that Callaway argues that Acushnet's Pro V1 and Callaway's Rule 35 golf balls were commercially successful, and therefore that this provides objective evidence that the patents-in-suit were not obvious. I disagree with this argument.

215. First, Callaway's arguments rely on the assumption that Acushnet's Pro V1 and Callaway's Rule 35 balls are covered by the patents-in-suit. I am informed that Acushnet denies that its Pro V1 family of golf balls infringe the patents-in-suit. I have not studied whether the Pro V1 or Rule 35 golf balls are covered by the patents-in-suit, nor do I currently have an expert opinion on that subject. However, if those golf balls are not covered by the patents-in-suit, any commercial success of those products logically could not be attributable to the patents-in-suit.

216. Second, even assuming that the Pro V1 and Rule 35 golf balls are covered by the claims of the patents-in-suit, Callaway has not, in the papers that I have read, established a "nexus" between any commercial success that the Pro V1 and Rule 35 balls have had and the technology of the patents-in-suit. In other words, Callaway has not demonstrated, in my opinion, that the reason the Pro V1 was successful, and the Rule 35 balls were allegedly successful, was due to the fact that they are allegedly covered by the claims of the patents-in-suit.

217. In my opinion, even assuming that the Pro V1 family of golf balls are covered by the claims of the patents-in-suit, there are many reasons for the success of those Pro V1 golf balls that are not implicated by the claims of the '293 patent. I set forth some of these reasons below.

1. The Pro V1 golf balls have good performance for many reasons other than that they are multi-layer, polyurethane-covered golf balls

218. From a technical performance perspective, I understand that the Pro V1 is a good performing golf ball, in that it achieves good distance off the tee in combination with good spin

and control around the greens. This good performance is due to many technical features of the Pro V1 construction. I describe some of these technical features below.

219. I have reviewed the declarations of Bill Morgan, Jerry Bellis, and Davis Love III, that were submitted in the pending litigation between Bridgestone Sports and Acushnet. In those declarations, Messrs. Morgan, Bellis, and Love all describe technical features of the Pro V1 construction that contribute to its high performance. *See* Morgan Decl. ¶¶ 47-49; Bellis Decl. ¶ 72; Love Decl. ¶ 29. I agree with the descriptions by Messrs. Morgan, Bellis and Love of what technical features of the Pro V1 lead to his high performance.

220. First, the Pro V1 has a very large core (about 1.53 inches), which contributes to the energy and power that can be generated off of the tee, and contributes to reduced spin characteristics of the ball off the tee. This large core distinguishes the Pro V1 ball construction from other golf balls, including multi-layer golf balls, and is made possible by the ability to mold a very thin inner cover layer and case a very thin outer cover layer.

221. Second, the Pro V1 has a very thin intermediate layer (about 0.045 inches), made possible by manufacturing techniques that I understand were developed by Acushnet. This thin inner cover layer allows for a larger core, as described above.

222. Third, the ball has a very thin outer cover layer (about 0.030 inches), which is made with a cast urethane material. At the time the Pro V1 was released, in 2000, 0.030 inches was very thin for an outer cover layer by golf ball cover standards.

223. Fourth, the proprietary cast urethane that is used in the outer cover of the Pro V1 is a high performance urethane that has very good durability properties.

224. Fifth, I understand that the Pro V1 had unique aerodynamics that contributed to its performance.

225. Sixth, I understand that Acushnet uses very strict quality control standards and procedures, which contribute to the consistency of Pro V1 balls.

226. I understand that there are many other technical features of the Pro V1 balls, both in terms of its construction, materials, and the manufacturing methods used to make the balls,

that contribute to its performance. For example, according to Mr. Morgan, head of R&D for golf balls at Acushnet, there are over 60 patents used in making the Pro V1 and Pro V1x golf balls. Morgan Decl. ¶ 56. I have reviewed many of these patents, and they include technologies of Acushnet ranging from aerodynamics, adhesion between cover layers, core composition, improved painting methods, improved manufacturing techniques, and many others. *See, e.g.,* U.S. Patent Nos. 5,018,742; 5,795,529; 5,957,786; 6,315,915; 6,635,716; 6,755,912, to name just a few. To say that the high performance of the Pro V1 golf balls is due merely to the fact that they are multi-layer and urethane-covered ignores the fact that there are clearly many more technological advances and innovations contributing to the performance of the ball.

2. The patents-in-suit do not describe golf balls similar in construction to the Pro V1 golf balls

227. As I describe above, the combination of the very large core, thin inner cover layer, and very thin urethane outer cover layer is one of the primary reasons for the high performance of the Pro V1 golf balls. This type of golf ball construction is neither contemplated nor described in the patents-in-suit.

228. The patents-in-suit describe the use of various materials that may be used as the outer cover layer, including soft ionomers, blends of hard and soft ionomers, soft thermoplastic and thermoset materials, thermoplastic urethanes, thermosetting urethanes, and polyester amides. In fact, most of the discussion of the patents-in-suit is devoted to examples using ionomer outer covers over ionomer inner covers.

229. The only example in the patents-in-suit that describe using castable polyurethane (like the polyurethane used in the Pro V1) is in Example 4. *See, e.g.,* '293 patent, col. 22:30-23:40. Each of the cast urethane-covered example balls described in Example 4 has a substantially different construction than that of the Pro V1. These example balls are listed as examples 23-5 in Table 9. While the Pro V1 has a very large core (about 1.53 inches), the core of these examples is substantially smaller (1.47 inches). Similarly, while the Pro V1 has a super

thin outer cover layer (0.030 inches), these example balls have a much thicker outer cover layer (0.050 to 0.055 inches).

230. Accordingly, the specification of the patents-in-suit does not teach or suggest a ball construction like the Pro V1, which has a very large core and a super thin outer cover layer. Nor do the patents-in-suit suggest that a construction like the Pro V1 would have advantages over other multi-layer, urethane-covered golf balls. In fact, the examples described above teach away from using a construction like the Pro V1.

231. In addition, the description of the patents-in-suit is not limited to the use of solid cores. "The golf balls of the present invention can be produced by ... injection molding or compression molding the inner cover layer about wound or solid molded cores...." *See, e.g.,* '293 patent, col. 15:14-19.

232. I understand that the claims of the patents-in-suit should not be limited to the preferred embodiments described in the specification, and this section of my report is not intended to suggest otherwise. But the fact that the description of the patents-in-suit does not suggest using a construction like the Pro V1, and in fact suggests constructions much different from that of the Pro V1, suggests that the reason for the high performance of the Pro V1 is due to something else other than merely the fact that the Pro V1 is a multi-layer, urethane covered golf ball, as described and claimed in the patents-in-suit.

3. The claims of the patents-in-suit are extremely broad and would encompass balls nothing like the Pro V1

233. The claims of the patents-in-suit set forth extremely broad ranges for the thicknesses of the inner cover layer and outer cover layer.

234. For example, claim 1 of the '293 patent claims that the inner cover layer can be from 0.100 to 0.010 inches. All of the other independent claims of the patents-in-suit claim a similar range. In the world of golf ball design, this range is vast. In my experience, golf balls that have an inner cover thickness of 0.100 inches (which would be considered very thick) would

perform substantially differently from golf balls that an have inner cover thickness of 0.010 inches (which would be considered very thin).

235. Similarly, claim 1 of the '293 patent claims that the outer cover layer can be between 0.010 and 0.070 inches. Again, this is a vast range. In my experience, golf balls that have an outer cover thickness of 0.010 inches (which would be considered extremely thin) would perform substantially differently from golf balls that have an outer cover thickness of 0.070 inches (which would be considered very thick).

236. For example, multi-layer golf balls with outer cover thicknesses of 0.010 inches would be, in my experience and opinion, likely to have durability, consistency, and manufacturing problems (especially since dimples are typically thicker than 0.010 inches). Moreover, it is not clear whether such a cover would be too thin to realize the advantage of having a soft outer cover layer at all (such as spin and control around the greens).

237. Similarly, multi-layer golf balls with an outer cover thickness of 0.070 inches (made of relatively soft material, as claimed in the patents-in-suit) would be, in my experience and opinion, very likely to have resilience issues. Such balls would likely have very poor distance off the tee.

238. In addition, the claims of the patents-in-suit say nothing about the diameter of the core. Given the huge ranges for cover thicknesses, the core of the golf balls claimed in the patents-in-suit could range anywhere from 1.34 inches to 1.64 inches, which is a world of difference in golf ball construction.

239. The claims of the patents in suit are also not limited to golf balls having a solid core. The specification of the patents-in-suit clearly state that wound cores may be used in the invention. "The golf balls of the present invention can be produced by … injection molding or compression molding the inner cover layer about wound or solid molded cores…." *See, e.g.,* '293 patent, col. 15:14-19. Thus, golf balls using the claimed construction can have solid cores or wound cores. The choice of whether to use a solid core or a wound core would, in my experience, have an enormous impact on the performance of the golf ball.

240. In short, while the claims of the patents-in-suit clearly specify a general construction for golf balls (a multi-layer construction, a relatively hard ionomer inner cover layer, and a relatively soft outer cover layer), they provide very little direction beyond that in terms of dimensions of the various layers or even the type of core to be used.

241. As a result of the breadth of the claims, there is still a huge amount of experimentation and decision-making that needs to be done to choose the right combination of materials and dimensions within the broad confines of a "multi-layer, urethane-covered golf ball." Different combinations of core size, inner cover thickness, and outer cover thickness will lead to wildly different performance. Choices of solid cores versus wound cores will also lead to very different performance.

242. As discussed in this section, the claims of the patents-in-suit would embody golf balls that look nothing like the Pro V1, and balls that would have incredibly poor performance compared to the Pro V1. Thus, in my opinion, it is absolutely incorrect to say that the good performance of the Pro V1 is due to merely to the fact that it allegedly is covered by the claims of the patents-in-suit. Instead, it is the particular choices that Acushnet made (in terms of core diameter, inner cover thickness, outer cover thickness, materials for each component, manufacturing processes, etc.), that make the Pro V1 perform the way that it does. Virtually none of those choices are dictated, or even discussed, by the broad claims of the patents-in-suit.

243. I am informed that in order to use commercial success of a product to support an argument of non-obviousness, the product that is commercially successful must be commensurate in scope with the claims at issue. Here, as demonstrated above, that is not the case. Here, even if the Pro V1 falls within the claims of the patents-in-suit, the claims are much broader than the specific design characteristics of the Pro V1 family of golf balls.

4. The commercial success of the Pro V1 golf balls is due to many factors other than their construction

244. Apart from the performance of the Pro V1 golf balls, there are also many other factors, some extremely important, that have made the Pro V1 golf balls successful, in my

opinion. While I am not an expert in market demand or market conditions, I have in my experience working with golf companies been exposed to the different reasons for the commercial success or failure of golf balls.

245. I understand that Callaway released its Rule 35 golf balls (FirmFeel and SoftFeel) in early 2000, and Acushnet released its Pro V1 golf ball in late 2000. I also understand that the Rule 35 balls were very similar in construction to the Pro V1 balls. In particular, I understand that they had a very thin outer cover layer made of cast urethane, a thin inner cover layer, and a relatively large solid core.

246. My understanding is that in 2000 the most popular ball on tour was the Titleist Professional ball, which was a wound, polyurethane-covered golf ball. When the Pro V1 was released, most tour players that were using the Titleist Professional ball switched to the Pro V1 ball. In addition, the Pro V1 ball became the most popular premium golf ball among amateur players.

247. There are many reasons, in my experience and opinion, why tour players, and amateur players, switched to the Pro V1 ball. I have reviewed the declarations of Jerry Bellis and Davis Love III that were submitted in the pending litigation between Bridgestone Sports and Acushnet. In those declarations, Messrs. Bellis and Love describe their perceived reasons for the commercial success of the Pro V1 golf ball. *See* Bellis Decl. ¶¶ 72-74; Love Decl. ¶ 27. Given my experience working with golf ball companies, including Acushnet, the reasons they express for the success of the Pro V1 are entirely plausible to me. Some of these reasons are set forth below.

248. First, demand, especially on the professional tours, changed somewhat to desire a ball with less spin off the tee than traditional wound balls in the late 1990s and early 2000s. Balls with solid, multilayer construction were well suited to this changing market demand. This change in market demand was due to several factors, including the following:

a. The introduction and prevalence of oversized metal woods and titanium drivers, which led to a greater desire for low-spinning balls, such as solid, multilayer balls.

b. Professional golfers became better athletes. Young players, including Tiger Woods, emerged who were stronger and had more power to hit the ball off the tee with higher club head speeds. This too led to a desire for balls with lower spin off the tee, such as solid, multilayer balls.

c. Tiger Woods had phenomenal success on the professional tour in the late 1990s, and then switched to a solid, multilayer ball from Nike in May of 2000, after which he continued to have enormous success on tour. This drove other professionals to want to play a solid, multilayer ball.

249. A second important reason for the commercial success of the Pro V1 balls is the Titleist brand itself. The golf ball business is a very brand-driven business, for both professionals and amateurs. Professionals traditionally exhibit a great deal of brand loyalty. Players who play a particular company's golf ball are likely to use that company's new ball when it releases a new ball. Titleist in particular has a reputation for quality and performance, and many professional players who switched to the Pro V1 were players who had previously used the Titleist Professional. Indeed, if performance of the golf ball were the only thing driving commercial success of golf balls, one would expect the Rule 35 ball to have taken a large share of the golf ball market, especially during the period in 2000 when the Rule 35 had been released but before the Pro V1 had been released. Even after the Pro V1 was released, the Rule 35 balls had very similar construction and performance to the Pro V1 balls. But the Rule 35 balls never reached anywhere close to the market share that the Pro V1 balls attained. This tells me that the success of the Pro V1 had to do with factors other than just the performance and construction of the ball.

250. A third important reason for the commercial success of the Pro V1 is the effect of professional players on amateur players. In my experience, amateur players choose golf balls in

large part based on what professionals are playing. When professional players switched in large numbers to the Pro V1 ball from the Titleist Professional ball, many amateur players did the same.

251. It is also noteworthy that the patents-in-suit were developed by Spalding, not Callaway or Titleist. Despite the fact that the invention of the patents-in-suit was apparently conceived by 1995 at Spalding, I am informed that Spalding did not release a golf ball using the claimed multilayer, polyurethane construction until well after Acushnet and Callaway did so in 2000. If the technology of the patents-in-suit were such a breakthrough over the prior art, I would have expected Spalding to have taken advantage of this technology well before it did.

252. In short, the commercial success of the Pro V1 family of golf balls is due to many factors, both technological and market-related, that are not claimed features of the patents-in-suit. In my opinion the success of the Pro V1 golf balls cannot be attributed to the fact that they allegedly practice the claims of the patents-in-suit.

B. Long-Felt Need

253. I understand that Callaway argues that there was a long-felt need to create golf balls with good distance off the tee and good spin and control around the greens. I do not disagree that this has been a design goal for designers of golf balls for years. However, this remains a design goal of golf ball designers today, and in my opinion will remain a design goal. Since players are not, according to the rules of golf, allowed to use one type of ball off the tee, another type of ball in the fairway, another type of ball in the rough, and another type of ball for putting, there will in my opinion always be a desire for a ball that has length off the tee and control around the greens.

254. I understand that Mr. Morgan made an effort to find golf ball patents that express the design goal of creating balls that are long off the tee and provide good control around the greens. His research indicated that over 55 Spalding patents, going back to the 1980s, over 20

Callaway patents, over 60 Sumitomo patents, and over 150 Bridgestone patents describe such an objective. Morgan Decl. ¶ 74. This is consistent with my experience looking at golf ball patents.

255. The fact that creating a golf ball that is long off the tee and provides control around the greens has been, and continues to be, a design goal does not in any way impact the my opinion of whether the patents-in-suit are obvious.

C. Unexpected Results / Improved Results

256. I understand from Callaway's arguments set forth in the reexamination filings and interrogatory responses that Callaway argues that the praise and improved results of the Pro V1 golf ball is further evidence that the invention of the patents-in-suit is not obvious. This argument is premised on the flawed assumption that the Pro V1 *is* the patents-in-suit, and it ignores the fact that there are many more technological advances and innovations contributing to the performance and resultant praise of the Pro V1 balls than just the fact that it is a three-piece urethane-covered ball, including substantial Acushnet patented technology. As I described in great detail above, the Pro V1 embodies design choices, such as materials and dimensions, that much more specific than the broad claims of the patents-in-suit. Callaway has also not explained how the praise of the Pro V1 is associated with the patents-in-suit rather than Acushnet's technology used to design and make the Pro V1, or the marketing campaigns and widespread loyalty to the Titleist brand that surround the Pro V1.

257. The fact that the Pro V1 produced very good results, and received praise from many sources, does not bear a sufficient enough connection to the claims of the patents-in-suit, in my opinion, to conclude that the patents-in-suit are not obvious.

258. In addition, Callaway does not identify any unexpected results due to the invention of the patents-in-suit. All of the prior art discussed in this report explain the advantages of using a multi-layer construction, and the advantages of using polyurethane as an outer cover material. Thus, any good results of using a multi-layer construction with a polyurethane cover were known in the art and to be expected.

D. Failure of Others

259. I understand from Callaway's reexamination filings that it argues that Dennis Nesbitt tried and failed to make the claimed invention of the patents-in-suit in the late 1970s, and that this alleged failure is evidence that the patents-in-suit were not obvious in 1995. I disagree with this line of argument.

260. I have read the deposition of Mr. Nesbitt that was submitted in conjunction with Callaway's reexamination filings. My reading of Mr. Nesbitt's transcript leads to quite the opposite conclusion as that expressed by Callaway. Contrary to Callaway's claim, Mr. Nesbitt did not fail to make the claimed invention in the 1970s – he succeeded in doing so, and quite easily.

261. Mr. Nesbitt testified that in 1977, he conceived of the three-piece, ionomer-over-ionomer construction that was embodied in the Nesbitt patent in 1982. Nesbitt Tr. at 56:11-14. Around the same time, he also conceived of using polyurethane instead of ionomer as the outer cover layer. Nesbitt Tr. at 85:1-9. Mr. Nesbitt testified that in the course of just a few months, he ordered the polyurethane material and made multi-layer, polyurethane-covered golf balls. Nesbitt Tr. at 102-10-24. Mr. Nesbitt testified that he made the polyurethane-covered three-piece balls in virtually the same way that he made he ionomer-over-ionomer balls, and that he did not experience any difficulty in doing so. Nesbitt Tr. at 102:10-103:8. He did not pursue that construction ultimately because it did not exhibit the properties he desired and he perceived adhesion problems with the ball. Nesbitt Tr. at 103:9-17.

262. Mr. Nesbitt's testimony is relevant in my mind in a couple of ways. First, Mr. Nesbitt's testimony clearly shows that he did not fail to make the invention claimed in the patents-in-suit, but quite the opposite—he made the invention of the patents-in-suit in 1978, 17 years before the effective filing date of the patents-in-suit. The fact that Mr. Nesbitt did not like the resilience properties of the ball or the adhesion of the cover layers to each other has no relevance to the claims of the patents-in-suit, since the claims do not claim properties such as

resilience or adhesion. Thus, I find Callaway's arguments regarding the failure of others to invent unpersuasive, and they do not change my opinion that the patents-in-suit were obvious.

263. Second, Mr. Nesbitt's work with polyurethane covers in 1978 confirms my opinion expressed in this report that polyurethane was a known cover material, and it was known to use polyurethane as a substitute for ionomer in the outer layer of a golf ball in 1995 (in fact as early as the 1970s). The fact that Mr. Nesbitt expressed interest in using polyurethane instead of ionomer in the outer cover of a multi-layer golf ball in 1978 shows that a person of ordinary skill in the art would naturally have thought of doing so in 1995.

E. Commercial Acquiescence

264. Callaway argues in its interrogatory responses that because other golf ball companies, such as Nike, TaylorMade, Bridgestone, Wilson, and Srixon, have introduced multilayer polyurethane-covered golf balls since the introduction of the Pro V1, this is evidence that the patents-in-suit are not obvious under a theory of "commercial acquiescence." I disagree.

265. I understand that sometimes an industry can implicitly acknowledge, or acquiesce to, the validity of a patent. This can take the form of licensing the patent (which may indicate that a company acknowledges the validity of the patent) or substantial expense taken to design around a patent (which may also indicate that a company believes the patent to be valid). I am informed that facts such as those can be used as evidence of non-obviousness. I am not aware of any such facts in this case.

266. First, the fact that these companies make multi-layer, urethane-covered balls apparently without licensing the patents-in-suit, is in my mind evidence that they have not acquiesced to the validity of the patents-in-suit. If companies really thought the patents-in-suit were valid, one would expect them to have either licensed the patents or designed around them. Instead, by Callaway's count, at least six major golf ball companies have had multi-layer, polyurethane balls on the market without taking a license to the patents-in-suit (including Acushnet). This indicates to me, if anything, a consensus in the market that the patents-in-suit

are not valid. Even Callaway itself stated its belief that the patents-in-suit are not valid, before it bought the patents from Spalding. Nesbitt Tr. at 250:15-22.

267. Second, to the extent that other companies have introduced multi-layer, polyurethane-covered golf balls, there is no nexus between those balls and the invention claimed by the patents-in-suit. In particular, those balls all have particular dimensions and material choices that are not specified in the claims of the patents-in-suit. The patents-in-suit broadly outline the type of construction that might lead to a ball with low spin off the tee and control around the greens. But golf ball companies must still determine the right combination of core chemistry, core dimensions, inner cover layer chemistry and dimensions, and outer cover layer chemistry and dimensions to get the preferred optimum performance properties.

268. Third, the prior art references that I discuss in this report so clearly match up to the claims of the patents-in-suit, that the fact that other companies have developed multilayer urethane-covered balls could only be used to inject doubt where there is none in my mind about the obviousness of the patents-in-suit.

269. Thus, the fact that other golf ball companies have introduced multi-layer urethane-covered balls does not change my opinion that the claims of the patents-in-suit are obvious.

F. Failure to Design Around

270. Callaway identifies in its interrogatories the fact that Acushnet has not designed around the patents-in-suit as evidence that the patents-in-suit are not obvious. I do not agree.

271. First, I am informed that Acushnet obtained an opinion of counsel that the patents-in-suit are invalid shortly after they issued, for many of the same reasons that I set forth in this report. Thus, the fact that Acushnet allegedly did not design around the patents-in-suit could be evidence merely of the fact that Acushnet did not feel it was necessary to design around the patents-in-suit, rather than the fact that it could not do so.

272. Second, to the extent Callaway argues that the patents cannot be easily designed around, that is merely a function of the breadth of the claims of the patents-in-suit. The claims are so broad as to be clearly anticipated and rendered obvious by the prior art discussed in this report.

IX. CONCLUSION

In addition to the opinions and evidence expressed herein, I reserve the right to rebut any arguments made or evidence presented in response to this report. I also reserve the right to supplement this report based on further investigation or analysis. I also reserve the right to supplement or amend this report based on the Court's claim construction. I also plan to use graphic exhibits and/or demonstratives to help illustrate the facts and opinions I express herein.

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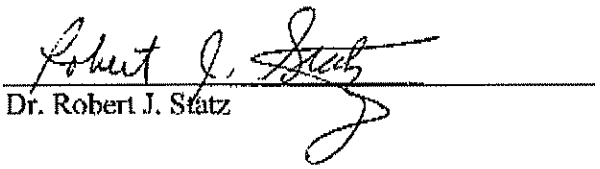
Respectfully,



Dr. Robert J. Statz

Dated: June 1, 2007

EXHIBIT A

ROBERT J. STATZ

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Education:

B.S., Chemistry – American University 1963, Washington, D. C.
M.S., Physical and Organic Chemistry, American University 1964
Ph.D., Polymer Chemistry University of Maryland 1968, College Park, MD

Professional Experience:

2002-Present	Retired
1990-2002	Research Fellow – DuPont Experimental Station Research on ionomers for golf balls and other applications
1986-1990	Senior Research Associate – DuPont Experimental Station Polymeric Plasticizers for PVC
1981-1986	Research Associate – DuPont Experimental Station Research on hot melt adhesives, thermoplastic elastomers, asphalt modifiers
1978-1981	Senior Research Chemist – DuPont Experimental Station Research on new soft ionomers for impact modification and a replacement for Balata in golf balls
1976-1978	Research Chemist – DuPont Chestnut Run Research on PVC modifiers and EVA hot melt adhesives
1974-1976	Research Chemist – DuPont Experimental Station Catalyst research to produce monomers for polymers
1971-1974	Research Chemist – DuPont Sabine River Plant (Orange, TX) Research on ionomer resins
1968-1971	Research Chemist – DuPont Experimental Station Research on engineering polymers, polyacetals

U. S. Patents (34 Issued)

U. S. Patents of Commercial Interest:

4,283,317	Wax Free Hot Melt Adhesive Compositions
4,232,174	Catalysts and Dehydrogenation Process
4,271,039	Catalyst and Dehydrogenation Process
4,613,533	Thermoplastic Elastomeric Compositions
4,690,981	Ionomers Having Improved Low-Temperature Properties
4,387,188	Molding Resins Based on Blends of Acid Copolymers and Linear Polyolefins
4,742,107	Noise Reduction and Damping Compositions
5,057,593	Free Radical Copolymerization of Ethylene and CO With Acetone
5,209,983	Adhesives for Laminating Vinyl to Various Substrates
5,277,947	Adhesives for Laminating Vinyl
5,298,571	High Resilient Ionomers for Golf Ball Covers

U. S. Patents of Commercial Interest (continued):

5,155,157	Compositions Useful in the Manufacture of Golf Balls
4,801,649	Ionomers Having Improved Low Temperature Properties and Blends Thereof With Thermoplastic Resins
5,278,236	Polymeric Plasticizers for PVC
5,086,113	Thermoplastic Blends of ABS Containing Ethylene Terpolymers
5,306,750	Polymer and Asphalt Reaction Process and Polymer-Linked Product
5,567,772	Ionomers for Golf Ball Composition
5,562,989	Thermoplastic Primers for Steel
4,985,497	Thermoplastic Blends Containing Ethylene Terpolymers and Preparation
4,766,174	Melt Processible Aluminum Ionomers
5,556,900	Process for Producing A Polyepoxy Polymer-Linked Asphalt
4,926,582	Low Pour Point Crude Oil Compositions
6,100,340	Golf Ball Compositions Containing High Crystalline Ionomers
5,631,324	Golf Ball Covers
5,580,927	Ionomers With Improved High Temperature Properties
RE37,597	Golf Ball Covers
6,197,884	Golf Ball Compositions Containing High Crystalline Acid Copolymers and Their Ionomer Derivatives
6,100,340	Golf Ball Compositions Containing High Crystalline Acid Copolymers and Their Ionomer Derivatives
5,971,869	Golf Ball Composition
5,889,114	Thermoplastic Elastomeric Compositions
5,691,418	Soft Ionomer Compositions and Blends Thereof and Use Thereof As Golf Ball Structural Material

Litigation

Spalding vs Titliest - 1983 - blends of ionomers for golf ball covers.

DuPont vs Spalding – reexamination of Spalding patent of golf ball cover materials Produced from blends – 1993.

Spalding vs DuPont – patent interference on ionomer blends for golf ball covers – 1997.

Spalding vs Wilson – on golf balls having hard, stiff covers and low spin. Deposed by Wilson and Spalding.

Presentations

"Surlyn® Ionomers for Golf Ball Covers," – Proceedings of the Third World Scientific Congress of Golf – 1998 St. Andrews Scotland.

"Surlyn® Ionomers for Golf Covers," Proceedings of the First World Scientific Congress of Golf – 1990 St. Andrews Scotland.

"New Ethylene Copolymers for Asphalt Modification," 1995 Petersen Asphalt Research Conference, Laramie, Wyoming.

"Reactive Ethylene Terpolymers for Asphalt Modification," 1996 Petersen Asphalt Conference.

"Commercial Uses of Ionomers," 1986 ACS Conference, Boston, Massachusetts.

"Photodegradable Ethylene Copolymers," 1990 ACS Conference, Boston, Massachusetts.

"New Plasticizers for PVC," 1990 ACS Conference, Boston, Massachusetts.

"Commercial Uses of Ionomers and Patents," 1986 N.A.T.O. Conference on Ionomers, Villard-De-Lans, France.

"History of the Discovery of Ionomers," 1984 ACS Conference, Miami, Florida.

Consultant for the following:

- Titliest-Footjoy Industries – Fairhaven, MA
- TAMPCO Asphalt Industries – Joplin, MO
- Adell Plastics – Baltimore, MD
- DuPont – Wilmington, DE
- University of California – San Diego, CA
- Penn State, Materials Science Department – State College, PA
- Western Research Institute – Laramie, WY

Awards

DuPont Marketing Excellence Award – 1992 and 1999 – for the discovery of a new Polymeric modifier for asphalt Elvaloy® (see Patent 5,306,750).

I-R 100 Award – 1986 – for the invention of Alcryn®, a thermoplastic elastomer (see Patent 4,163,533).

Significant Other Accomplishments

Was selected to appear in a Corporate television advertisement, which has appeared on television worldwide for the last three years. In this advertisement, I discussed my inventions that led to new ionomers for golf ball covers and new polymers to modify asphalt. A copy of the advertisement is available.

The polymers described in the patent list have resulted in commercial sales of close to 35 million dollars per year for DuPont.

EXHIBIT B

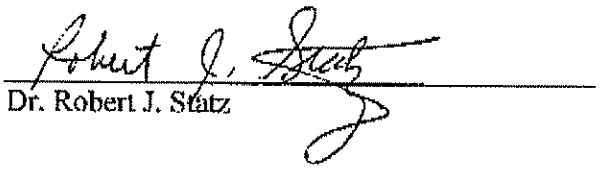
EXHIBIT B TO EXPERT REPORT OF DR. ROBERT J. STATZ (MATERIALS REVIEWED)

I reviewed all or part of at least the following sources of information in forming the opinions expressed in my expert report. In addition, any documents not listed here but that are referred to in my report were also available to me.

1. U.S. Patent Nos. 6,210,293, 6,503,156, 6,506,130, 6,595,873 (the "patents-in-suit");
2. Prosecution histories for the patents-in-suit, including ancestor applications;
3. U.S. Patent No. 4,431,193 to Nesbitt;
4. U.S. Patent No. 5,314,187 to Proudfit;
5. U.S. Patent No. 4,274,637 to Molitor;
6. U.S. Patent No. 5,334,673 to Wu;
7. U.S. Patent No. 4,674,751 to Molitor;
8. Requests for reexamination, including exhibits and declarations, of the patents-in-suit;
9. Office Actions in the reexaminations of the patents-in-suit;
10. Callaway's response to the office actions in the reexaminations of the patents-in-suit, including exhibits and declarations;
11. Acushnet's comments to Callaway's response to the office actions in the reexaminations of the patents-in-suit, including exhibits and declarations;
12. Declarations of Ed Hebert ("Hebert PTO Decl.") and Jeff Dalton ("Dalton PTO Decl.") submitted in the reexaminations of the patents-in-suit;
13. Declaration of William MacKnight ("MacKnight Decl.") submitted in the reexaminations of the patents-in-suit;
14. Deposition transcripts submitted in the reexaminations of the patents-in-suit, including the Nesbitt deposition transcript ("Nesbitt Tr.");
15. Declarations of Bill Morgan ("Morgan Decl."); Jerry Bellis ("Bellis Decl."); and Davis Love III ("Love Decl.") submitted as exhibits in the reexaminations of the patents-in-suit;
16. Dupont Surlyn Information Sheet;
17. Estane 58133 Product Specification Sheet;
18. Several of my own patents, including U.S. Patent No. 4,844,814;
19. U.S. Patent No. 3,264,272;
20. U.S. Patent No. 3,454,280;
21. U.S. Patent No. 5,691,418;
22. U.S. Patent No. 6,953,820;
23. U.S. Patent No. 3,989,568;
24. U.S. Patent No. 4,123,061;
25. U.S. Patent No. 4,442,282;
26. U.S. Patent No. 6,213,894;
27. U.S. Patent No. 5,803,831;
28. U.S. Patent No. 6,905,648;
29. U.S. Patent No. 5,018,742;
30. U.S. Patent No. 5,795,529;

31. U.S. Patent No. 5,957,786;
32. U.S. Patent No. 6,315,915;
33. U.S. Patent No. 6,635,716;
34. U.S. Patent No. 6,755,912;
35. U.S. Application Serial No. 09/873,594, *Ex parte Sullivan*, 2004-0242, BPAI decision;
36. U.S. Application No. 08/631,613m Binette Declaration;
37. Callaway's non-confidential interrogatory responses;
38. ASTM D-2240 Standard;
39. ASTM D-790 Standard;
40. Elastomers Notebook No. 149;
41. Science and Golf I, Proceedings of the First World Scientific Congress of Golf, 1990;
42. Science and Golf III, Proceedings of the 1998 World Scientific Congress of Golf, 1998;
43. COMPASS readings, July 1991;
44. Several of my papers, including Robert J. Statz, "Commercial Uses of Ionomers," Polymer Preprints, Sept. 1988, and others;
45. Competitive ball report entry for Wilson Ultra Tour Balata 100, AC0072945;
46. Memoranda from Shenshen Wu describing polyurethanes used in the Titleist Professional and Titleist Professional 2P golf balls;
47. Conversations with Acushnet personnel; and
48. Conversations with duPont personnel.

Respectfully,



Dr. Robert J. Statz

Dated: June 1, 2007

IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF DELAWARE

CERTIFICATE OF SERVICE

I, David E. Moore, hereby certify that on June 1, 2007, a true and correct copy of the within document was caused to be served on the attorney of record at the following addresses as indicated:

VIA HAND DELIVERY

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721875 / 30030

Exhibit 4

IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF DELAWARE

CALLAWAY GOLF COMPANY Plaintiff, v. ACUSHNET COMPANY, Defendant.	)	C. A. No. 06-91 (SLR)

DECLARATION OF JEFFREY L. DALTON IN SUPPORT OF ACUSHNET'S MOTION FOR SUMMARY JUDGMENT OF INVALIDITY OF U.S. PATENT NOS. 6,210,293; 6,506,130; 6,503,156; AND 6,595,873

I, Jeffrey L. Dalton, hereby state as follows:

1) I am employed at the Acushnet Company ("Acushnet"), located at 333 Bridge Street, Fairhaven, Massachusetts 02719.

2) My current job title is Vice President of Intellectual Property.

3) I personally directed and witnessed the creation of golf ball materials and golf balls at the direction of Dr. William MacKnight, who has been retained by Acushnet in the above-captioned litigation.

4) I met with Dr. MacKnight in early May 2007 to discuss the preparation of golf balls materials and golf balls. Troy Lester, Acushnet's Chief Patent Counsel, was also present during that meeting. During that meeting, Dr. MacKnight and I discussed which materials and golf balls to make, and by the conclusion of the meeting, Dr. MacKnight had instructed me to make certain materials and certain golf balls with various combinations of core formulations and diameter, inner cover layer formulations and thicknesses, and outer cover formulations and thicknesses.

5) Specifically, Dr. MacKnight instructed me to make twelve (12) samples each of twelve (12) different constructions of golf balls. The first 9 golf ball constructions that I was instructed to make are accurately set forth in Dr. MacKnight's declaration, and are identified as BALL_1, BALL_2, BALL_3, BALL_4, BALL_5, BALL_6, BALL_7, BALL_8, and BALL_9. MacKnight Decl. ¶¶ 17-25. Dr. MacKnight's declaration is attached to his Expert Report, which is attached hereto as Exhibit A. Dr. MacKnight also instructed me to make twelve (12) samples of BALL_4, BALL_5, and BALL_6, but without the Blowing Agent Master Batch B in the inner cover layer.

6) Dr. MacKnight also directed me to create seven "plaques" of cover layer materials. Six of those materials are accurately described by Dr. MacKnight in his declaration as ICL_1, ICL_2, ICL_3, OCL_1, OCL_2, and OCL_3. MacKnight Decl. ¶¶ 10-15. The seventh material was the blend described in Dr. MacKnight's report as ICL_2, but without the Blowing Agent Master Batch B. MacKnight Decl. ¶ 11.

7) During the meeting with Dr. MacKnight, I showed Dr. MacKnight the manufacturing equipment that would be used to create the materials and golf balls he directed, and discussed the procedures that would be used to create those materials and golf balls. Dr. MacKnight approved the process and equipment that I told him I would use.

8) Subsequent to my meeting with Dr. MacKnight, I personally directed and witnessed the creation of the balls that Dr. MacKnight had directed me to make. In particular, I created twelve (12) samples each of the nine (9) different constructions that he sets forth in his declaration as BALL_1 through BALL_9. MacKnight Decl. ¶¶ 17-25. I also created twelve (12) samples each of BALL_4, BALL_5, and BALL_6, but without the Blowing Agent Master Batch B in the inner cover layer. I also personally directed the placement of a dimple pattern on each ball and the painting and finishing of each ball. I also personally directed and witnessed the creation of the plaques of cover layer material that I describe in paragraph 6 above. I personally inspected the balls and materials during and after their creation to ensure that they had the compositions that are described in Dr. MacKnight's expert report.

9) I have read and understand Dr. MacKnight's description of the balls that I made, and Dr. MacKnight's description accurately describes the balls that I made. MacKnight Dec. ¶¶ 7-26. If called to testify at trial I would testify that the balls that I created have the material compositions and properties that are set forth in Dr. MacKnight's expert report.

10) On or about May 17, 2007, I brought the material plaques and balls that I had made to the Plastics Testing Lab, Inc. ("PTLI") facility in Pittsfield, Massachusetts, which I understand is an accredited tester for Shore D hardness. I also brought samples of Wilson Ultra Tour Balata 90 and Wilson Ultra Tour Balata 100 balls from Acushnet's archives. Mr. Lester accompanied me. There, I met with Dr. MacKnight and James Galipeau, the Laboratory Manager.

11) Dr. MacKnight explained to Mr. Galipeau what tests to be performed on the golf balls we brought to PTLI. Specifically, he explained that he wanted to have the lab perform Shore D hardness measurements on the surface of the formed golf balls. Dr. MacKnight explained that he wanted the tests to be performed in accordance with ASTM D-2240, with the exception that the tests would be performed on the surface of the golf ball rather than on a plaque of material as required by ASTM D-2240.

12) Dr. MacKnight also directed Mr. Galipeau to perform the following measurements on the material plaques that were provided to him: a) flexural modulus tests according to ASTM D-790; b) Shore D tests according to ASTM D-2240; and c) measurements of the thickness of the plaques of materials.

13) Mr. Galipeau showed Dr. MacKnight and me the test equipment that was to be used for the tests, and Dr. MacKnight approved the procedures and equipment that were to be used for the measurements.

14) I have read and understand Dr. MacKnight's description of the testing that PTLI was instructed to perform, and Dr. MacKnight's description accurately describes what was communicated to PTLI. MacKnight Dec. ¶¶ 27-31.

15) On May 23, 2007, Mr. Galipeau emailed the results of PTLI's testing to Mr. Lester, who forwarded the email to me. A true and correct copy of the testing report that was sent by PTLI is attached hereto as Exhibit B.

I declare, under penalty of perjury, that the foregoing is true and correct. I would testify to the foregoing facts if called to do so in Court.

Jeffrey L. Dalton

Executed on: August 24, 2007